MB0104002C2

Service Manual

Compact Disc Player

COMPACT disc DIGITAL AUDIO

MASH multi-stage noise shaping

SL-PG4

Traverse Deck: RAE0155Z Mechanism Series

Colour

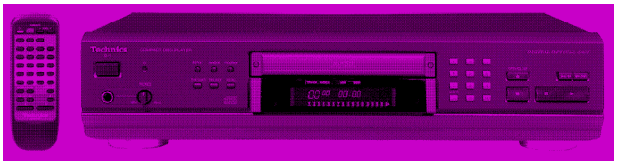
(K).....Black Type

Areas

(E).....Europe, East Europe and CIS.

(EB).....Great Britain.

(EG).....Europe.



SPECIFICATIONS

Specifications

Audio

No. of channels:	2 (left and right, stereo)
Frequency response:	2 – 20,000 Hz, ± 1 dB
Output voltage:	2 V (at 0 dB)
Dynamic range:	94 dB
S/N:	100 dB
Harmonic distortion:	0.004 % (1 kHz, 0 dB)
Total harmonic distortion:	0.005 % (1 kHz, 0 dB)
Wow and flutter:	Below measurable limit
DA converter:	MASH (1 bit)
Output impedance:	Approximate 1 kΩ
Load impedance:	More than 10 kΩ
Headphone output level:	15 mW max. 32 Ω (adjustable)

Pickup

Wavelength:	780 nm
Laser Power:	No hazardous radiation is emitted

General

Power supply:	AC 230 – 240 V, 50 Hz
Power consumption:	9 W
Dimensions (W × H × D):	430 × 92 × 290 mm
Mass:	3.2 kg

Notes: Specifications are subject to change without notice.
Mass and dimensions are approximate.

Note on CD-R and CD-RW
This unit can play CD-DA format audio CD-R and CD-RW that have been finalized* upon completion of recording. It may not be able to play some CD-R or CD-RW due to the condition of the recording.
* Finalizing is a process that enables CD-R/CD-RW players to play audio CD-R and CD-RW.

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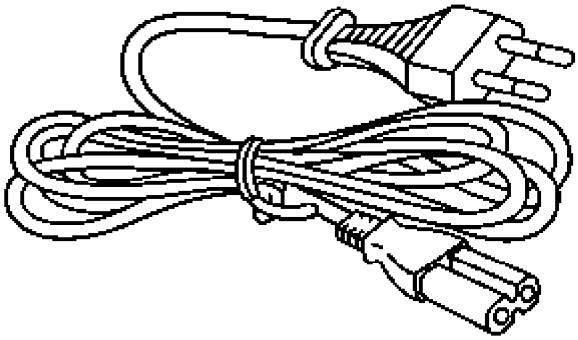
⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

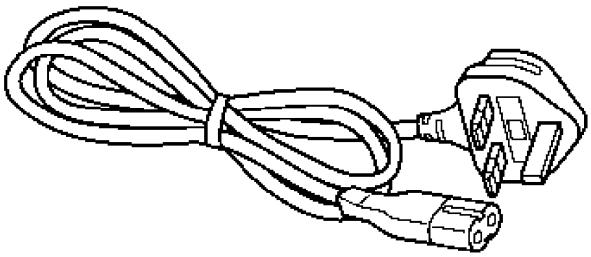
Technics®

1. Accessories

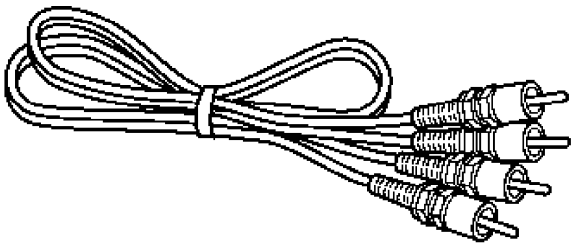
- AC power supply cord for (E), (EG) areas
(RJA0043-1C).....1 pc.



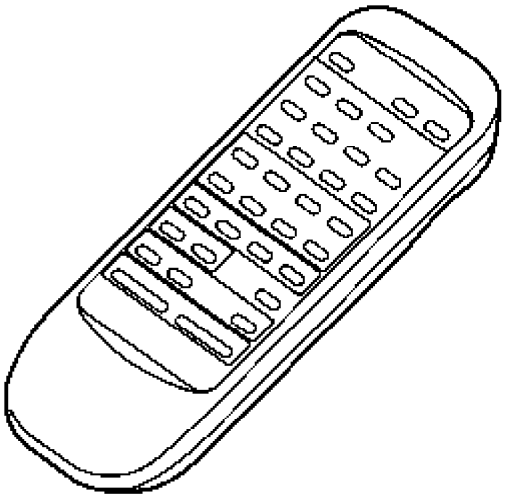
- AC power supply cord for (EB) area
(RJA0044-3C).....1 pc.



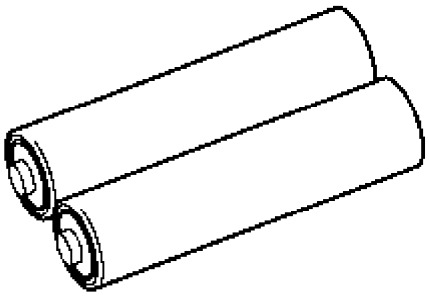
- Stereo phono cable
(RJL2P004B08A).....1 pc.



- Remote control
(EUR645275).....1 pc.



- Batteries for remote control
(R6, “AA”, UM-3))…….2 pcs.
Note: These are available on sales route.



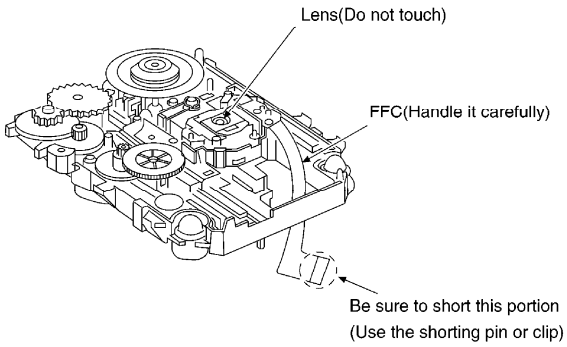
2. Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

2.1. Handling of traverse deck (optical pickup)

1. **Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.**
2. **To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board (FFC board). When removing or connecting the shorting pin, finish the job in as short time as possible. Refer to Fig. 2-1.**
3. **Take care not to apply excessive stress to the flexible board (FFC board).**
4. **Do not turn the variable resistor (laser power adjustment). It has already been adjusted.**

Fig. 2-1.

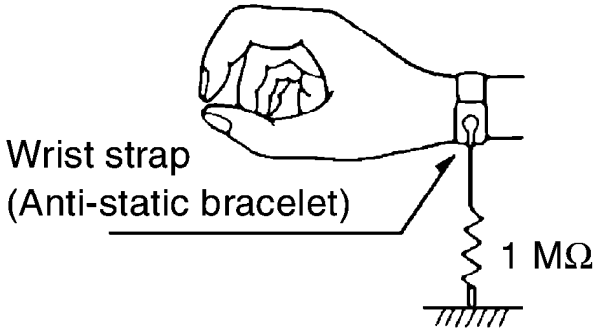


2.2. Grounding for electrostatic breakdown prevention

2.2.1. Human body grounding

Use the anti-static wrist strap to discharge the static electricity from your body. Refer to Fig. 2-2.

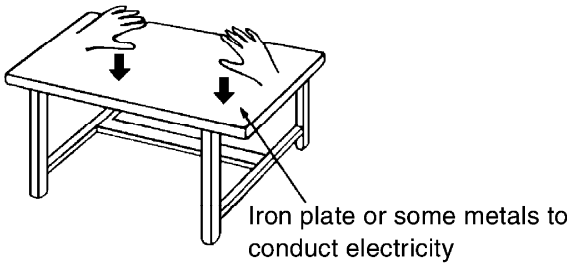
Fig. 2-2.



2.2.2. Work table grounding

Put a conductive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet. Refer to Fig. 2-3.

Fig. 2-3.



Caution:

The static electricity of your clothes will not be grounded through the wrist strap.
So take care not to let your clothes touch the traverse deck (optical pickup).

3. Precaution of Laser Diode

CAUTION:
THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pickup lens.
Wavelength: 780 nm
Maximum output radiation power from pickup: 100 µW/VDE

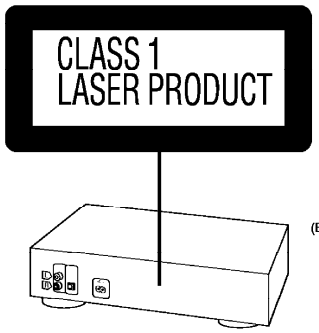
Laser radiation from the pickup unit is safety level, but be sure the followings:

1. Do not disassemble the pickup unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pickup lens for a long time.

ACHTUNG: Dieses Produkt enthält eine Laserdiode. Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahit.
Wellenlänge: 780 nm
Maximale Strahlungsleistung der Lasereinheit: 100 µW/VDE

Die Strahlung an der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werksseitig justierten Einstellregler der Lasereinheit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlinse blicken.
4. Nicht über längere Zeit in die Fokussierlinse blicken.



(Back of product)

DANGER	INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.	(Inside of product)
ADVARSEL	USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.	(Indersiden at apparatet)
VARO!	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTÖNTÄ LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.	(Tuotteen sisällä)
VARNING	OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.	(Apparatens insida)
ADVARSEL	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.	(Produktets innside)
VORSICHT	UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.	(Im Inneren des Gerätes)

4. Caution for AC Mains Lead

(For United Kingdom)

("EB" area code model only)

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark or the BSI mark on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local dealer.

CAUTION!
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:
Blue: Neutral, Brown: Live.
As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black or Blue.
The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Brown or Red.

WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL ⏚ OR COLOURED GREEN OR GREEN/YELLOW.

THIS PLUG IS NOT WATERPROOF—KEEP DRY.

Before use

Remove the connector cover.

How to replace the fuse

The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.
Illustrations may differ from actual AC mains plug.

1. Open the fuse cover with a screwdriver.

Figure A

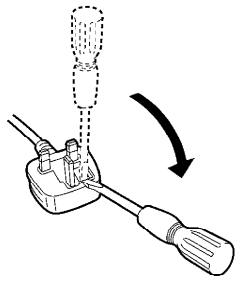
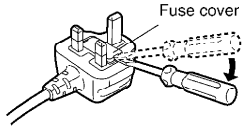


Figure B



2. Replace the fuse and close or attach the fuse cover.

Figure A

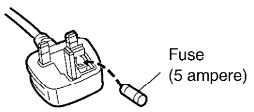
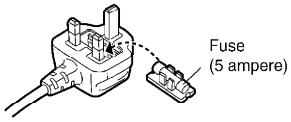


Figure B



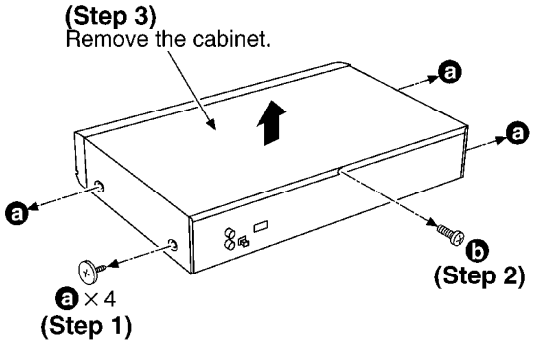
5. Location of Controls

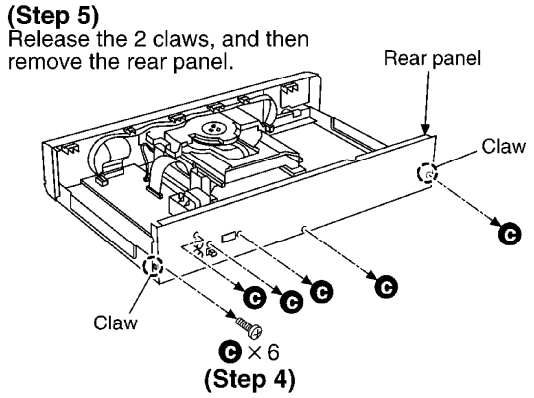
6. Operation Checks and Component Replacement Procedures

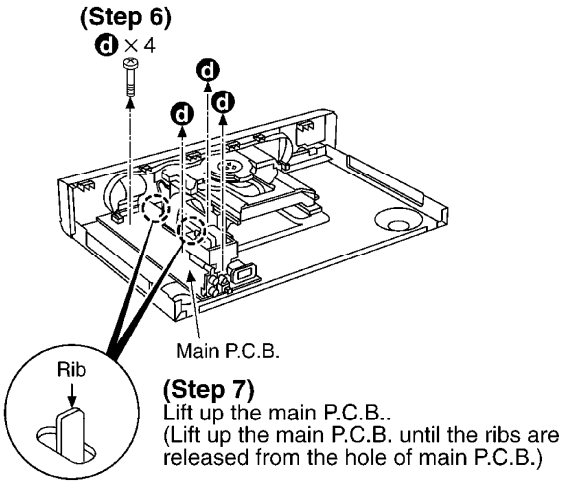
- This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.

- For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

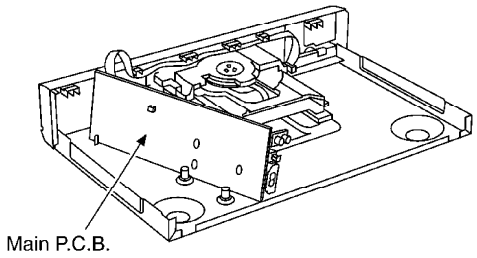
6.1. Checking for the main P.C.B.







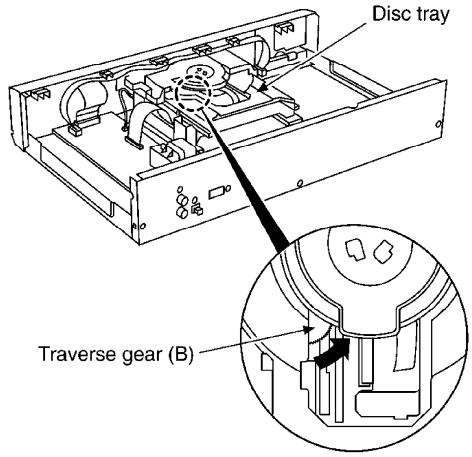
- Check the main P.C.B. as shown below.



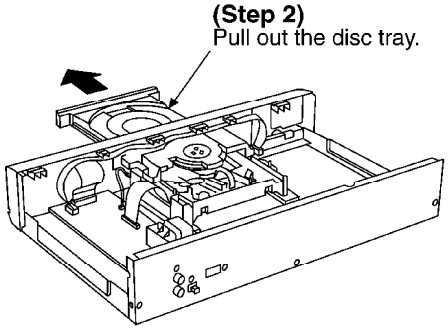
6.2. Checking for the CD servo P.C.B.

- Follow the (Step 1) - (Step 3) of item 6.1.

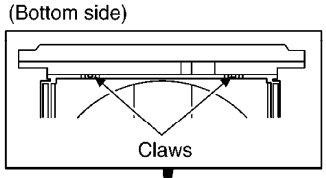
(Step 1)
Rotate the traverse gear (B) in direction of arrow, and then open the disc tray.



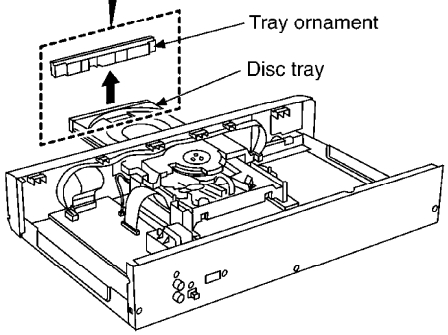
(Step 2)
Pull out the disc tray.

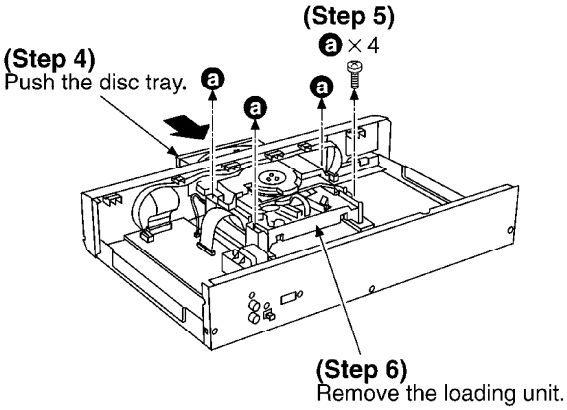


(Bottom side)

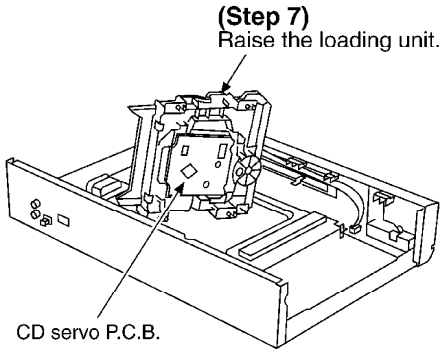


(Step 3)
Release the 2 claws, and then remove the tray ornament.



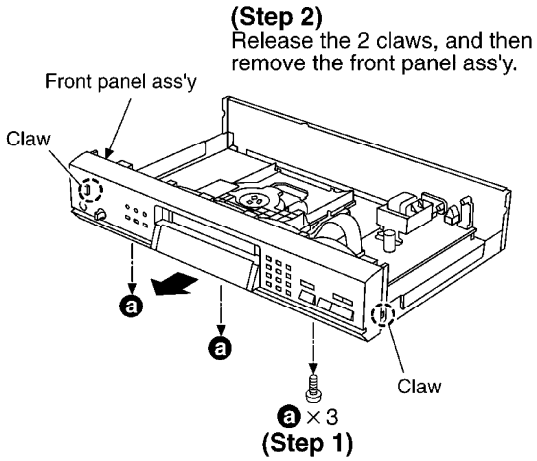


- Check the CD servo P.C.B. as shown below.

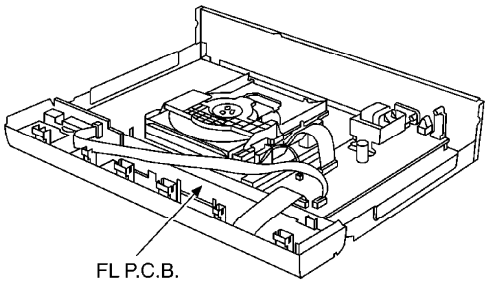


6.3. Checking for the FL P.C.B.

- Follow the (Step 1) - (Step 3) of item 6.1.



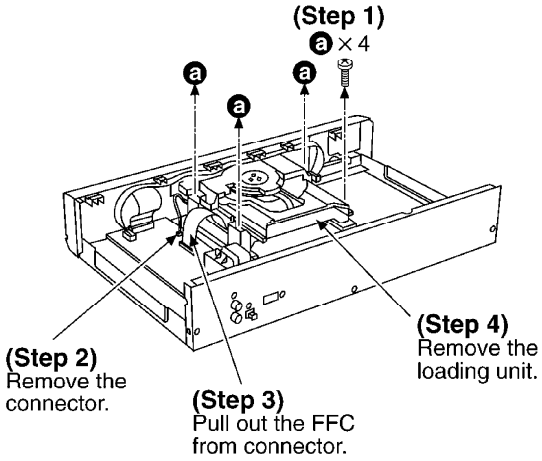
- Check the FL P.C.B. as shown below.

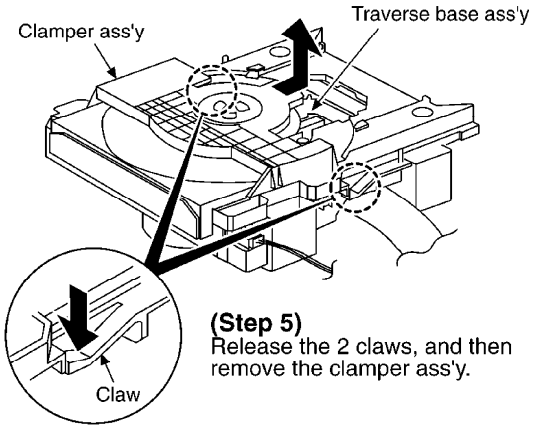


6.4. Replacement for the traverse deck ass'y, drive gear and cam gear

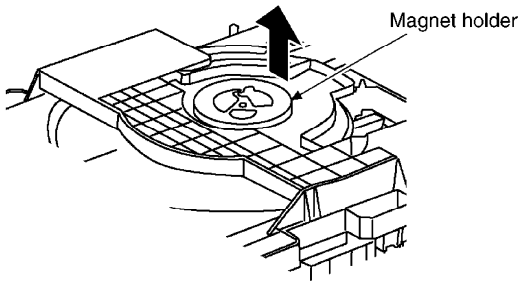
- Follow the (Step 1) - (Step 3) of item 6.1.

- Follow the (Step 1) - (Step 4) of item 6.2.

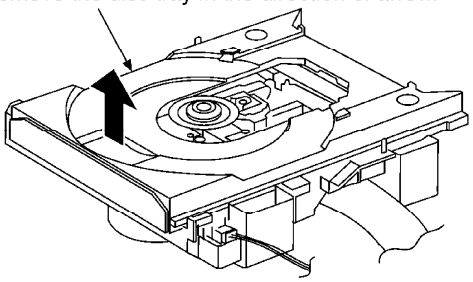




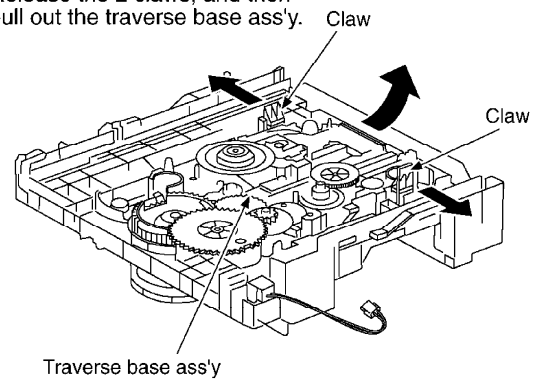
NOTE:
When the traverse base ass'y is up, remove the clamper ass'y after lift up the magnet holder.



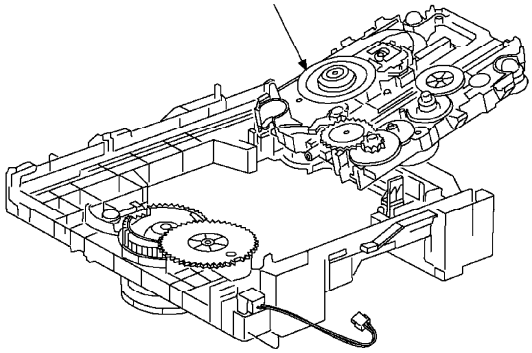
(Step 6)
Remove the disc tray in the direction of arrow.



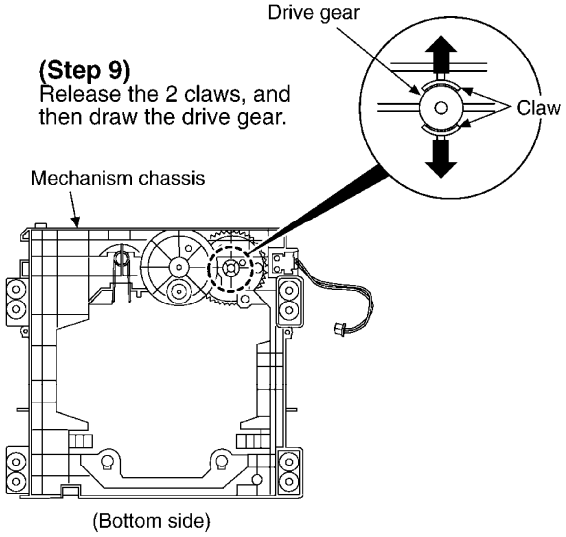
(Step 7)
Release the 2 claws, and then pull out the traverse base ass'y.



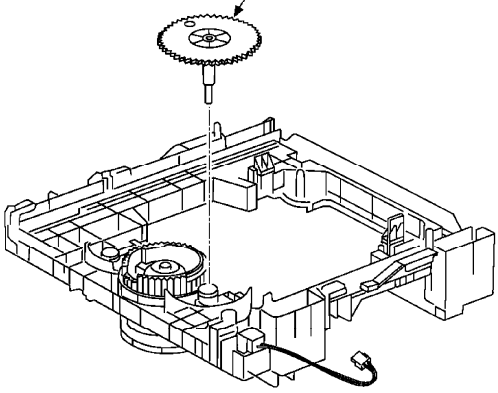
(Step 8)
Remove the traverse base ass'y.



(Step 9)
Release the 2 claws, and then draw the drive gear.

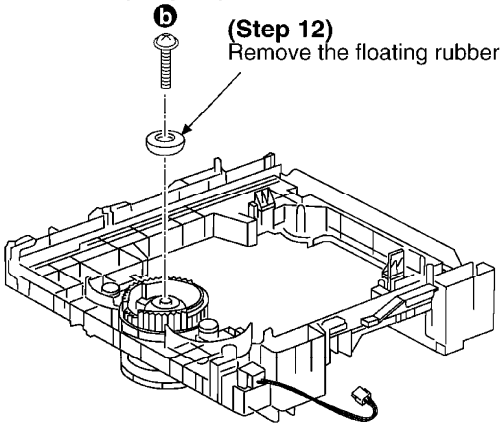


(Step 10)
Pull out the drive gear.



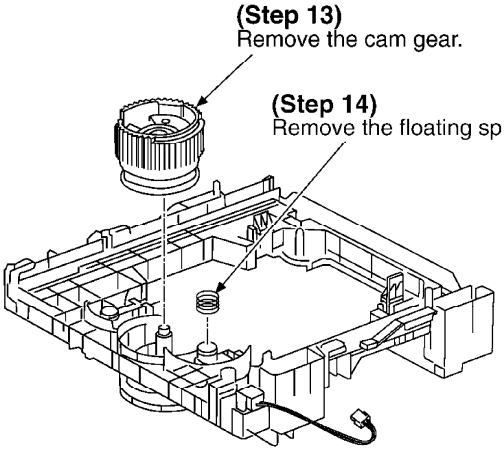
(Step 11)
ⓑ

(Step 12)
Remove the floating rubber (B).



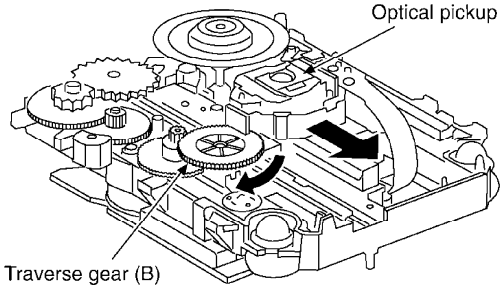
(Step 13)
Remove the cam gear.

(Step 14)
Remove the floating spring.



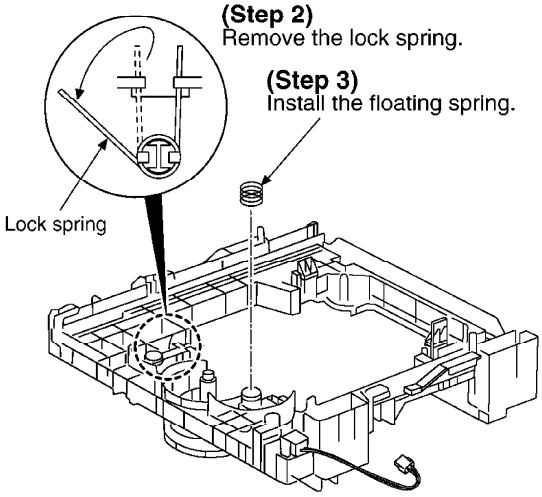
Installation for traverse base ass'y, cam gear, drive gear, disc tray and clamper ass'y

(Step 1)
Rotate the traverse gear (B), and then move the optical pickup in the direction of arrow.

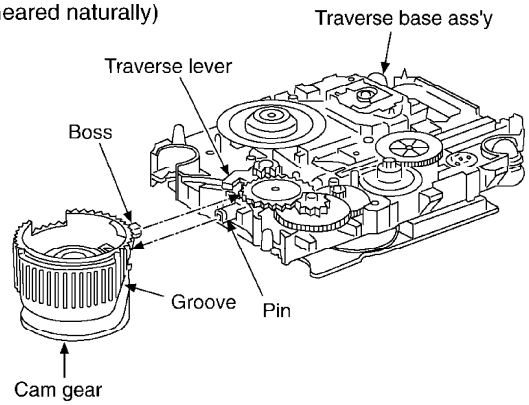


(Step 2)
Remove the lock spring.

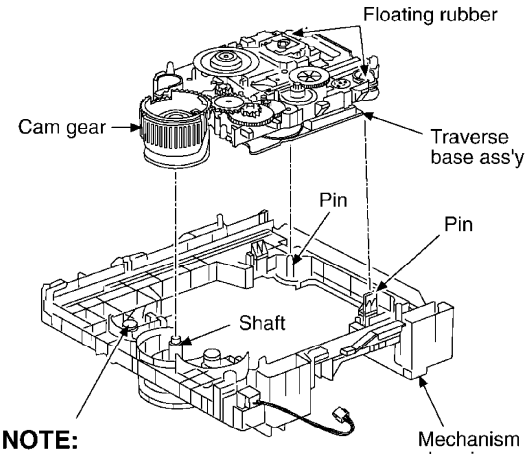
(Step 3)
Install the floating spring.



(Step 4)
Put the traverse base ass'y pin into the groove of cam gear, and at the same time, put the boss of cam gear into the traverse lever.
(Geared naturally)



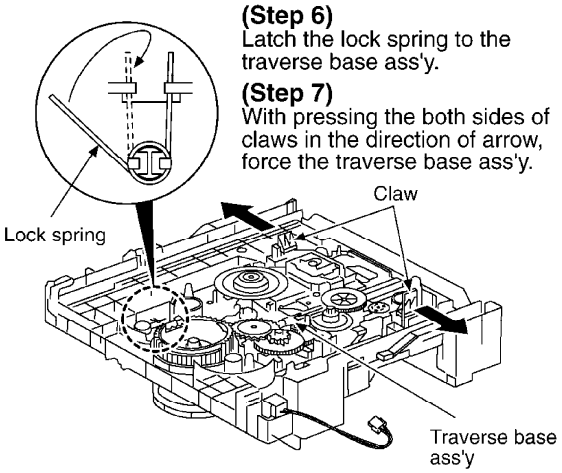
(Step 5)
Put the cam gear into the shaft of mechanism chassis, and put the floating rubber of the traverse base ass'y into pin of mechanism chassis.

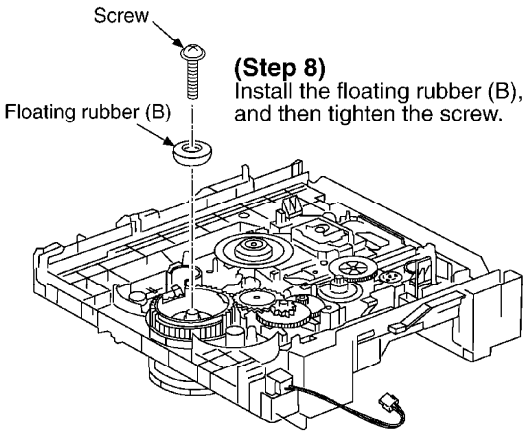


NOTE:
Be careful not to latch the lock spring.

(Step 6)
Latch the lock spring to the traverse base ass'y.

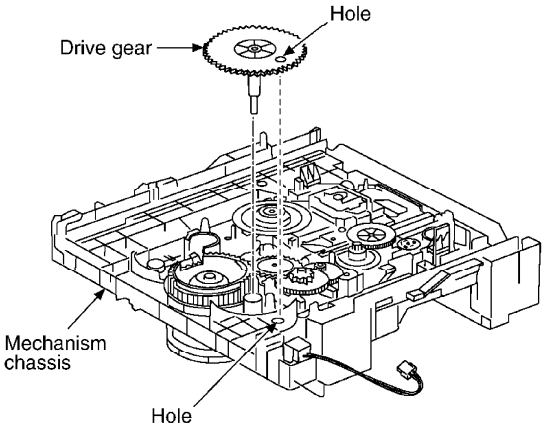
(Step 7)
With pressing the both sides of claws in the direction of arrow, force the traverse base ass'y.



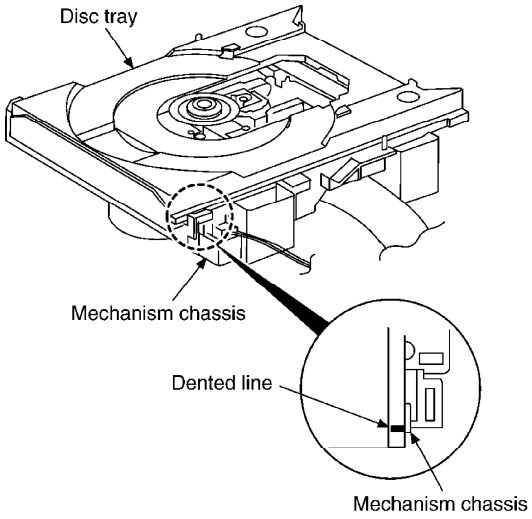


(Step 8)
Install the floating rubber (B), and then tighten the screw.

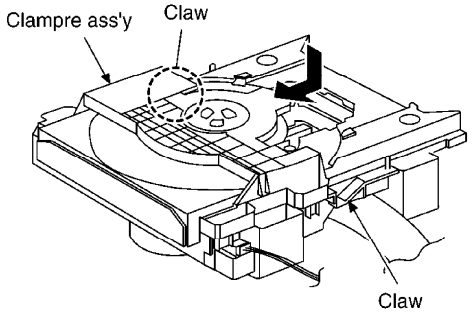
(Step 9)
Put the hole of drive gear and the hole of mechanism chassis together, and then push the drive gear in.



(Step 10)
Install the disc tray.
(When replacing the disc tray, make sure the dented line is at position as shown below.)

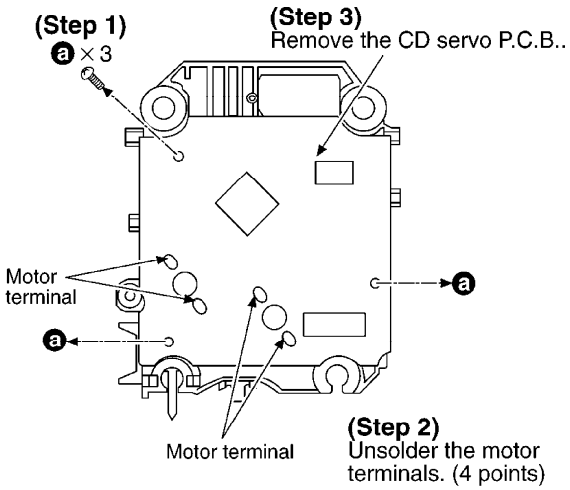


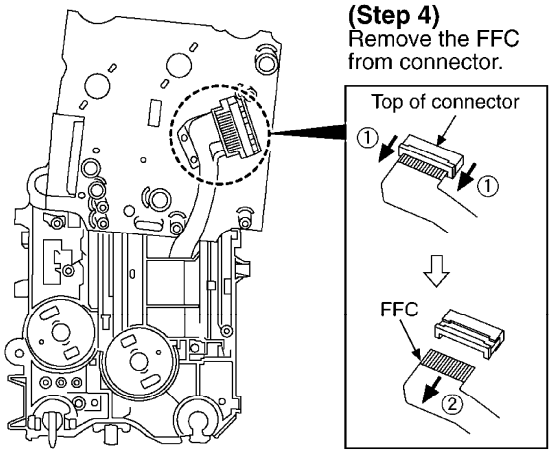
(Step 11)
Insert the clamper ass'y from the upper part, and install the claw like getting over.



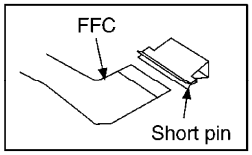
6.5. Replacement for the optical pickup

- Follow the (Step 1) - (Step 3) of item 6.1.
- Follow the (Step 1) - (Step 4) of item 6.2.
- Follow the (Step 1) - (Step 8) of item 6.4.

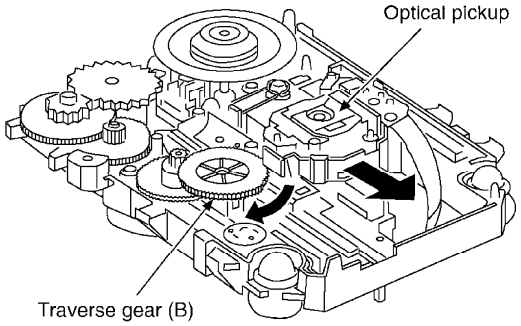




Caution:
Insert a short pin into the traverse unit FFC board.
(Refer to "**Handling Precautions for Traverse Deck**".)

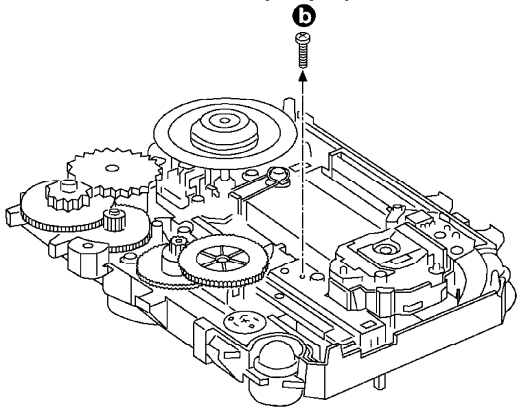


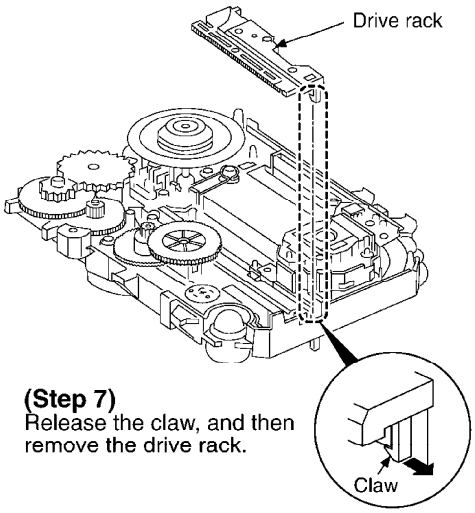
(Step 5)
Rotate the traverse gear (B), and then move the optical pickup to backward fully.



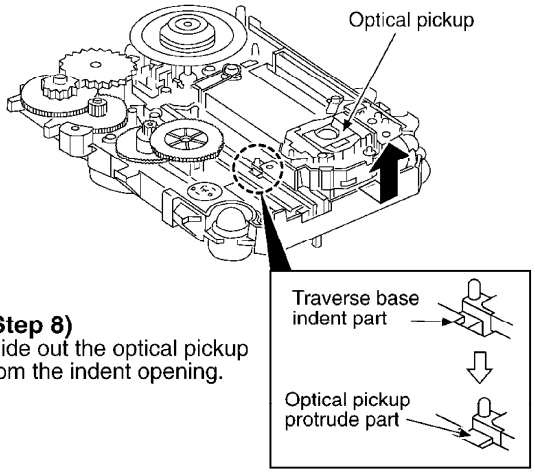
(Step 6)

ⓑ

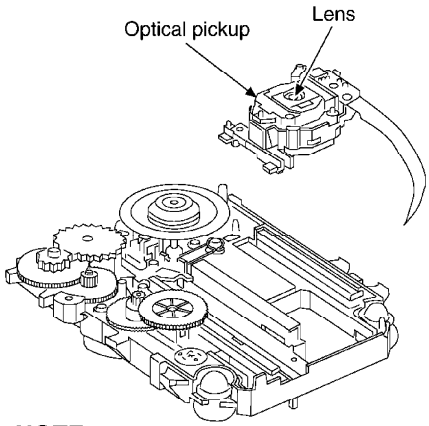




(Step 7)
Release the claw, and then remove the drive rack.



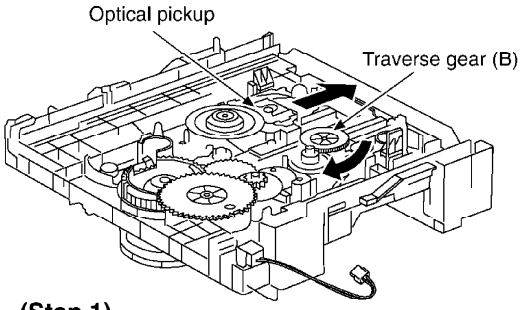
(Step 8)
Slide out the optical pickup from the indent opening.



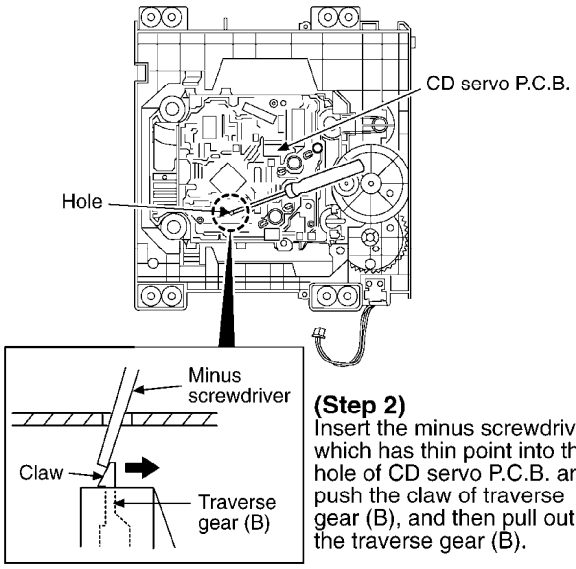
NOTE:
Do not touch the lens of the optical pickup.

6.6. Replacement for the traverse gear (A) and traverse gear (B)

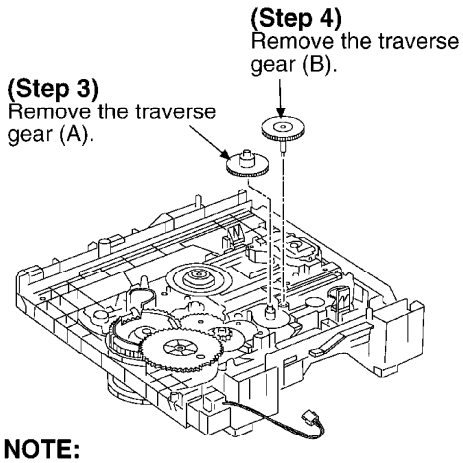
- Follow the (Step 1) - (Step 3) of item 6.1.
- Follow the (Step 1) - (Step 4) of item 6.2.
- Follow the (Step 1) - (Step 6) of item 6.4.



(Step 1)
Rotate the traverse gear (B), and then move the optical pickup to backward fully.



(Step 2)
Insert the minus screwdriver which has thin point into the hole of CD servo P.C.B. and push the claw of traverse gear (B), and then pull out the traverse gear (B).



NOTE:
Do not use traverse gear (B) remove once.
Be sure to exchange it to new one.

7. Self-Diagnostic Function

The self-diagnostic feature automatically diagnoses the unit's mechanism and provides error information display. It includes self-diagnostic functions for the servo system and mechanism control switches.

7.1. Servo system self-diagnosis

1. **With the test disc (SZZP1054C) loaded, turn off the unit.**
2. **While pressing and holding the Stop, Pause and Play button, turn on the unit again. Refer to Fig. 7-1. (The self-diagnostic function is activated.)**
3. **The display will show an error code, if any. Refer to Table 7-1.**
4. **Press the Play button to play the test disc. Refer to Fig. 7-1.**
5. **The display shows servo system status. Refer to Fig. 7-2. and Table 7-2.**
6. **Turn off the unit to exit the self-diagnostic function.**

Fig. 7-1.

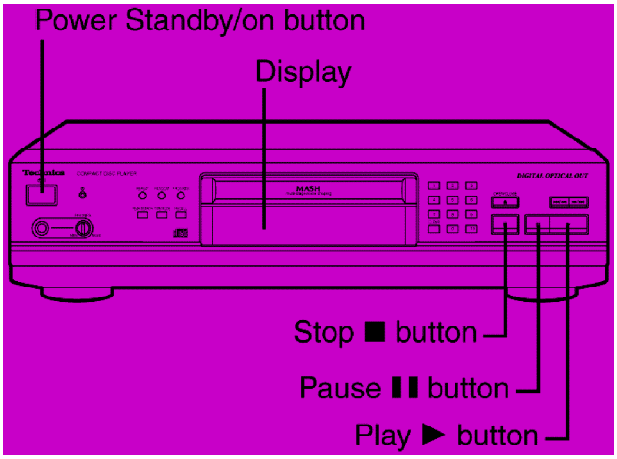
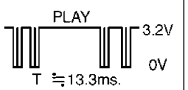
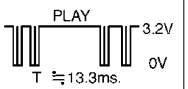
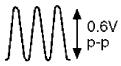
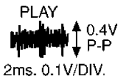
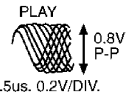


Table 7-1.

FL error code / display	Symptom	Probable cause	Signal to check		Normal voltage and waveform / values	
			Signal name	Location	PLAY	STOP
E00	Normal	-----	-----	-----	-----	-----
E01	Focus and tracking offset adjustments has not been completed in the specified time period.	1. IC702's clock input X1 IN, IC702's power supply (VDD) or its reset (/RST) is invalid. 2. Any signal MDATA, MCLK, MLD or SENSE to/from IC601 are invalid.	MDATA	IC702-pin 8		0 V
			MCLK	IC702-pin 7		3.3 V
			MLD	IC702-pin 9		3.3 V
			/RST	IC702-pin 18	3.3 V	3.3 V
			X1 IN	IC702-pin 58		
			X2 OUT	IC702-pin 59		
E02, E03, E05, E06, E07, E09, E0A, E0B, E0D, E0E, E0F	The test disc does not play consistently.	1. The disc is scratched or dirty. 2. Focus or tracking servo is malfunctioning (Check waveforms voltages and circuit constants). 3. Spindle driver is malfunctioning. 4. Optical pickup is malfunctioning.	FE	IC702-pin 32		1.6 V
			TE	IC702-pin 33		1.6 V
			FOD	IC702-pin 28	1.6 V	1.6 V
			TRD	IC702-pin 27	1.6 V	1.6 V
			/RFDET	IC702-pin 38	0 V	3.3 V
			RF	TJ701		0.9 V
			STAT	IC702-pin 17	3.2 V	0 V
FL error code / display	Symptom	Probable cause	Signal to check		Normal voltage and waveform / values	
			Signal name	Location	PLAY	STOP

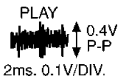
E04, E08, E0C	Focus and tracking gain adjustment has not been completed in specified time period.	1. The disc is scratched or dirty. 2. Focus or tracking servo is malfunctioning (Check waveforms voltages and circuit constants). 3. Optical pickup is malfunctioning.	FE	IC702-pin 32		1.6 V
			TE	IC702-pin 33		1.6 V
			OFT	IC702-pin 36	0 V	0 V

Fig. 7-2.

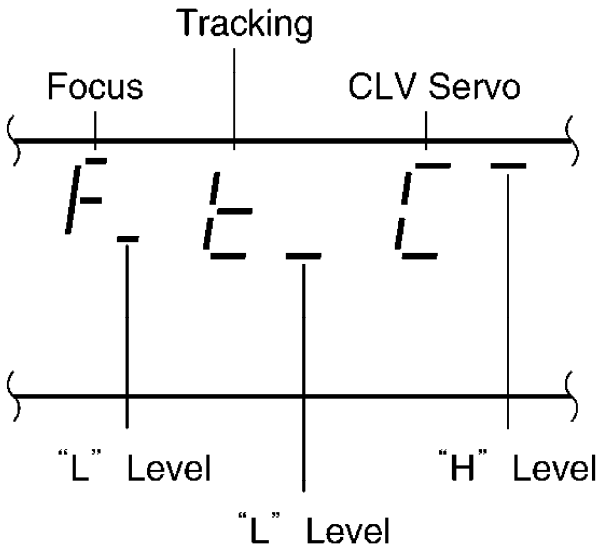


Table 7-2.

	L level	H level
Focus	Focus system normal	Focus system error
Tracking	Tracking system normal	Tracking system error
CLV servo	CLV servo system error	CLV servo system normal

7.2. Mechanism control switches self-diagnosis

1. Turn on the unit.
2. Press the Disc tray open/close button to open the disc tray, and load the test disc (SZZP1054C). Refer to Fig. 7-3.
3. Hold down the Stop button for more than 2 seconds, and then press the F.skip/search button for more than 2 seconds while continuing to hold down the Stop button. Refer to Fig. 7-3. (The symbol "C" isdisplayed on the display. It indicates the self-diagnostic function is activated.)
4. Press the Stop button. Refer to Fig. 7-3. The display will show an error

code, if any. Refer to Table 7-3.

5. If more than one error exists, the display will sequentially show the respective error codes each time the Stop button is pressed.

6. Turn off the unit to exit the self-diagnostic function.

Fig. 7-3.

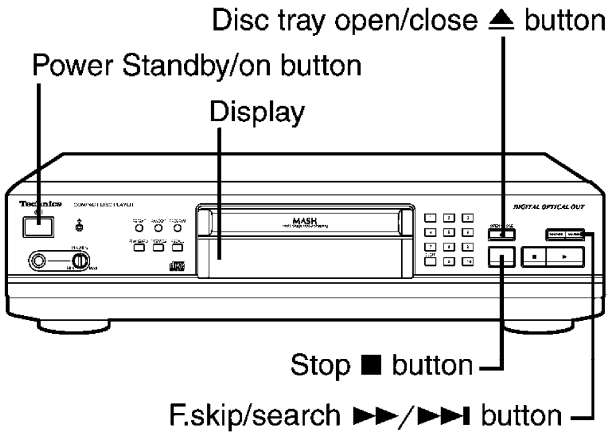


Table 7-3.

Error code	Symptom	Possible cause
F15	Interval before CD starts playing is too long.	Rest detect switch (S701) is defective.
H15	Disc tray closes immediately after it is opened.	Disc tray open/close detect switch (S790) is defective.
H16	Disc tray opens immediately after it is closed.	
F26	The display shows error code F26 after the unit is turned on. / CD does not play.	Communication error between CD servo IC and CPU.

Note:

Error code F26 will be displayed before the self-diagnostic function is activated if an error exists.

8. Schematic Diagram Notes

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

S601:

Time mode select switch (TIME MODE)

S604:

Peak search switch (PEAK SEARCH)

S605:

Random play switch (RANDOM)

S606:

Numeric switch (1)

S607:

Numeric switch (2)

S608:

Numeric switch (3)

S609:

Numeric switch (4)

S610:

Numeric switch (5)

S611:

Numeric switch (0)

S612:

Numeric switch (9)

S613:

Numeric switch (8)

S614:

Numeric switch (7)

S615:

Numeric switch (6)

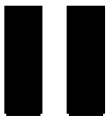
S620:

Numeric switch (**)**

S621:

F.Skip/search switch (**)**

S622:

Pause switch ( **)**

S623:

Disc tray open/close switch / (OPEN/CLOSE)

S624:

Program switch (PROGRAM)

S625:

Repeat switch (REPEAT)

S626:

Stop switch ( )

S627:

Play switch ( )

S628:

R.Skip/search switch ( )

S629:

Clear switch (CLEAR)

S630:

Program recall switch (RECALL)

S651:

Power Standby/on switch (/I)

S701:

Rest detect switch in OFF position

S790:

Disc tray open detect switch in OFF position

VR871:

Headphone volume control VR (PHONES)

- Indicated voltage values are the standard values for the unit measured

by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on theinternal impedance of the DC circuit tester.

No mark

: CD stop

()

: CD play [1 kHz, L+R, 0 dB]

- Important safety notice:

Components identified by ⚠ mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- The supply part number is described alone in the replacement parts list.

- Caution!

IC and LSI are sensitive to static electricity.

Secondary trouble can be prevented by taking care during repair.

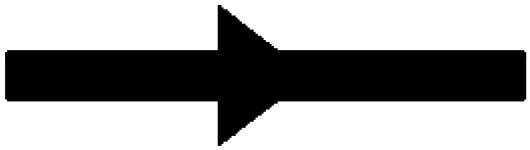
Cover the parts boxes made of plastics with aluminum foil.

Ground the soldering iron.

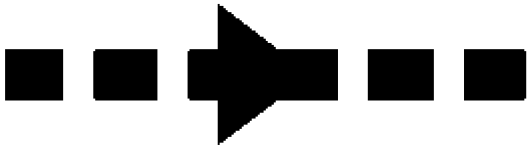
Put a conductive mat on the work table.

Do not touch the legs of IC or LSI with the fingers directly.

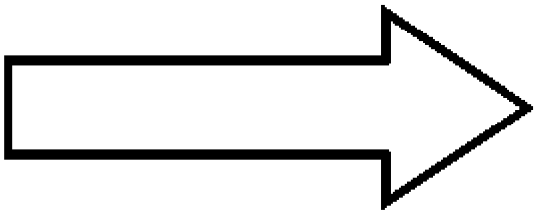
- Voltage and signal line



: Positive voltage line



: Negative voltage line



: CD playback signal line

9. Schematic Diagram

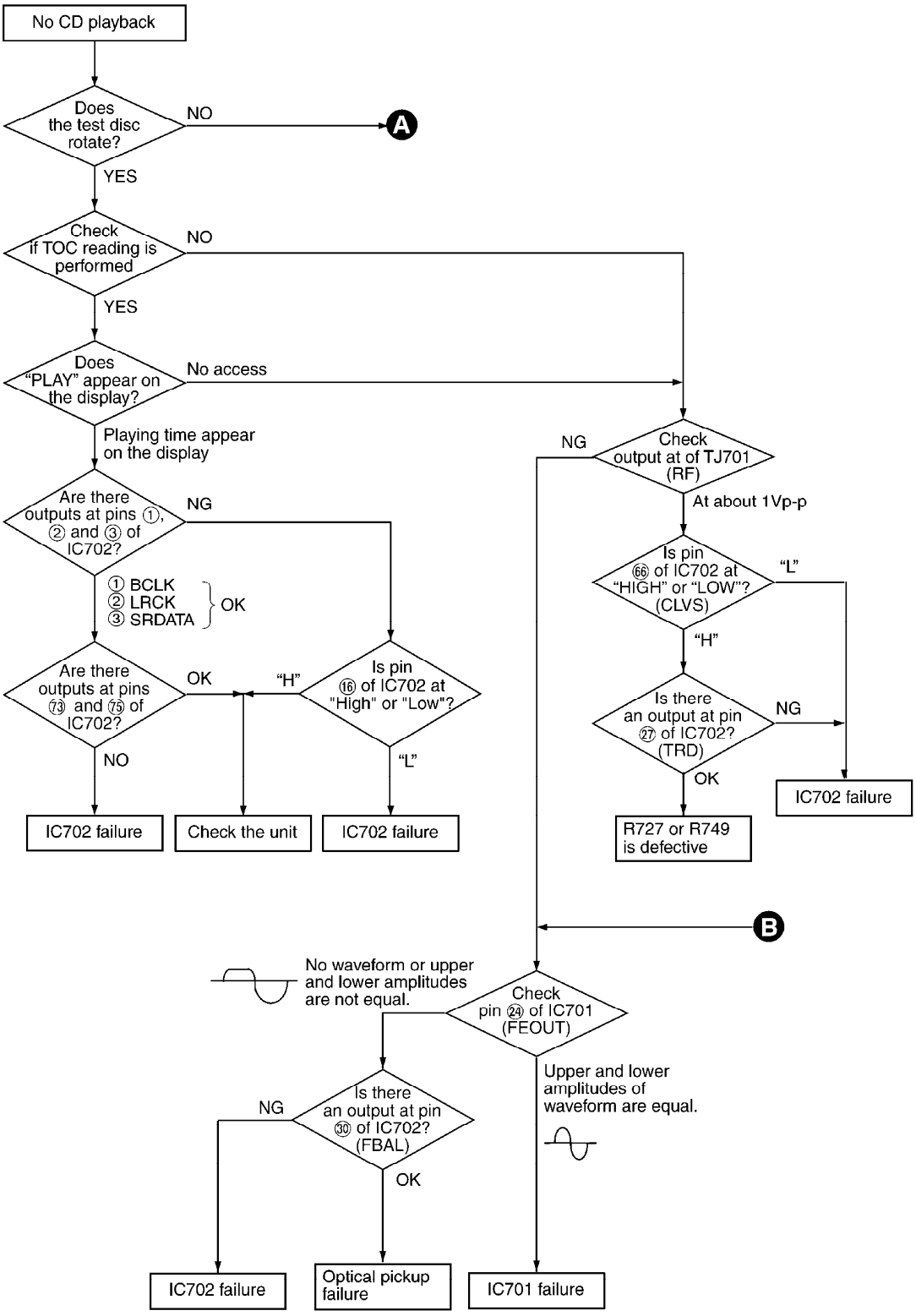
10. Printed Circuit Board Diagram

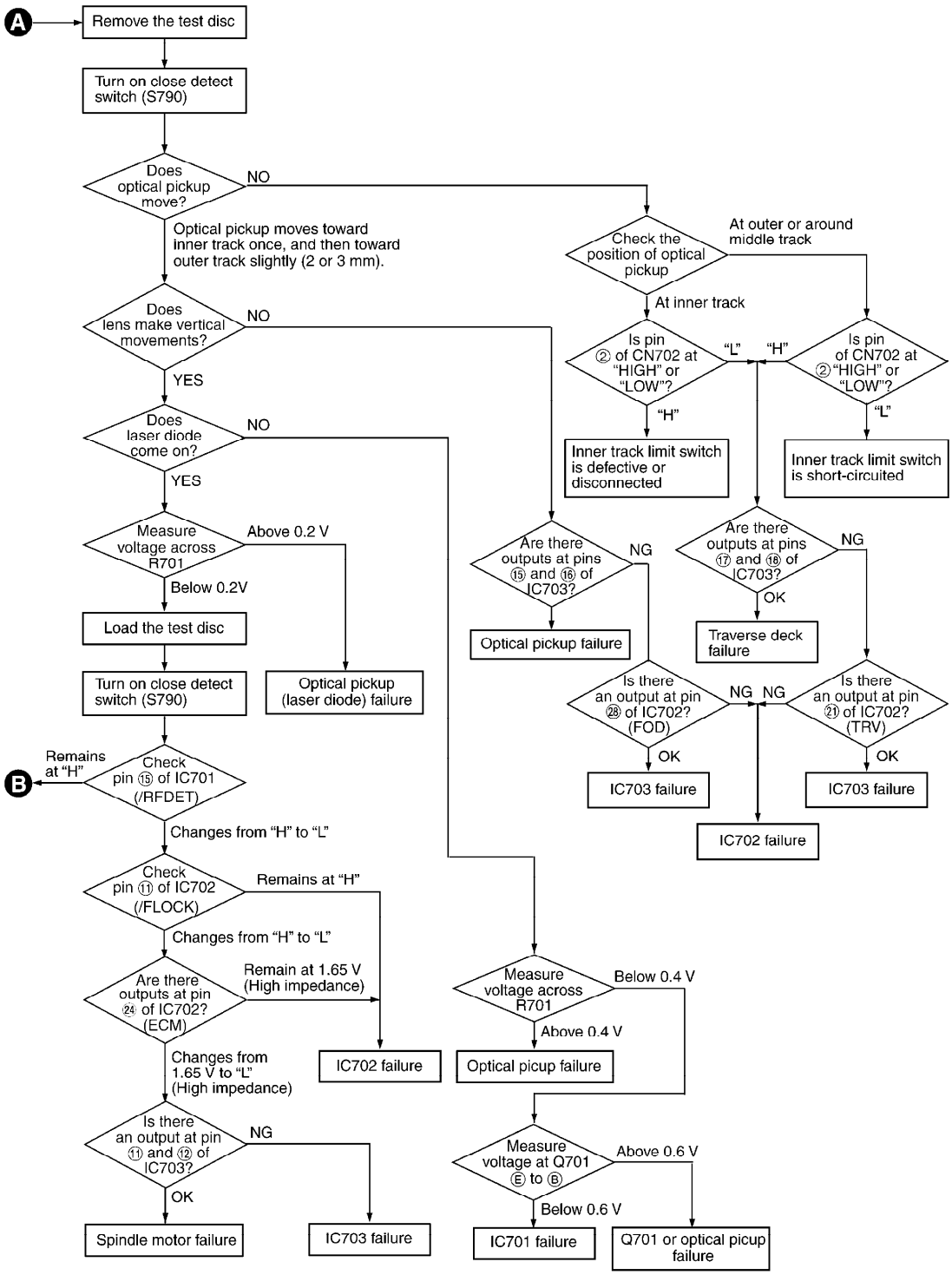
11. Type Illustration of ICs, Transistors and Diodes

12. Wiring Connection Diagram

13. Block Diagram

14. Troubleshooting Guide


No CD playback
Does the test disc rotate?
NO
A
YES
Check if TOC reading is performed
NO
YES
Does "PLAY" appear on the display?
No access
Playing time appear on the display
Are there outputs at pins ①, ② and ③ of IC702?
NG
① BCLK
② LRCK
③ SRDATA
OK
Are there outputs at pins ⑬ and ⑮ of IC702?
OK
"H"
Is pin ⑯ of IC702 at "High" or "Low"?
NO
"L"
IC702 failure
Check the unit
IC702 failure
NG
Check output at of TJ701 (RF)
At about 1Vp-p
Is pin ⑯ of IC702 at "HIGH" or "LOW"? (CLVS)
"L"
"H"
Is there an output at pin ㉗ of IC702? (TRD)
NG
OK
IC702 failure
R727 or R749 is defective
B
No waveform or upper and lower amplitudes are not equal.
Check pin ㉔ of IC701 (FEOUT)
Upper and lower amplitudes of waveform are equal.
NG
Is there an output at pin ㉚ of IC702? (FBAL)
OK
IC702 failure
Optical pickup failure
IC701 failure


A
Remove the test disc
Turn on close detect switch (S790)
Does optical pickup move?
NO
Optical pickup moves toward inner track once, and then toward outer track slightly (2 or 3 mm).
Does lens make vertical movements?
NO
YES
Does laser diode come on?
NO
YES
Measure voltage across R701
Above 0.2 V
Below 0.2V
Load the test disc
Turn on close detect switch (S790)
Optical pickup (laser diode) failure
Remains at "H"
B
Check pin ⑮ of IC701 (/RFDET)
Changes from "H" to "L"
Check pin ⑪ of IC702 (/FLOCK)
Remains at "H"
Changes from "H" to "L"
Are there outputs at pin ㉔ of IC702? (ECM)
Remain at 1.65 V (High impedance)
IC702 failure
Changes from 1.65 V to "L" (High impedance)
Is there an output at pin ⑪ and ⑫ of IC703?
NG
OK
Spindle motor failure
IC703 failure
Check the position of optical pickup
At outer or around middle track
At inner track
Is pin ② of CN702 at "HIGH" or "LOW"?
"L"
"H"
"H"
Inner track limit switch is defective or disconnected
Is pin of CN702 at ②"HIGH" or "LOW"?
"L"
Inner track limit switch is short-circuited
Are there outputs at pins ⑮ and ⑯ of IC703?
NG
Optical pickup failure
Are there outputs at pins ⑰ and ⑱ of IC703?
NG
OK
Traverse deck failure
Is there an output at pin ㉘ of IC702? (FOD)
NG
OK
IC703 failure
Is there an output at pin ㉑ of IC702? (TRV)
NG
OK
IC703 failure
IC702 failure
Measure voltage across R701
Below 0.4 V
Above 0.4 V
Optical picup failure
Measure voltage at Q701 Ⓔ to Ⓑ
Above 0.6 V
Below 0.6 V
IC701 failure
Q701 or optical picup failure

15. Terminal Function of ICs

15.1. IC601 (C2BBFE000100): / System Control/FL Drive

Pin No.	Terminal Name	I/O	Function
1	POWER OFF	O	Power off command output
2	DMUTE	O	Muting signal output
3	M RST	-	Not used, open
4	EMPH	-	Not used, open
5	NC	-	Not used, open
6			
7	REST SW	I	Rest detect switch signal input
8	NC	-	Not used, connected to GND
9			
10	RST	I	Reset signal input
11	NC	-	Not used, open
12			
13	V_{SS}	-	GND terminal
14	XIN	I	Oscillator connected terminal (F =4 MHz)
15	XOUT	O	
16	V_{CC}	I	Power supply terminal
17	STANBY LED	O	LED (STANDBY) control signal output
18	PLAY LED	-	Not used, open
19	PAUSE LED	-	Not used, open
20	P43	-	Not used, connected to GND
21	P42		
22	AC DET	I	Power failure detect signal input
23	REMOCON	I	Remote control signal input
24 | 27	P87 | P84	-	Not used, open
28	V_{EE}	I	Power supply terminal (Negative)
29 | 32	P83 | P80	I	Not used, connected to GND
33 | 42	1G | 10G	O	FL grid drive signal output
43 | 52	P1 | P10	O	FL anode drive signal output

Pin No.	Terminal Name	I/O	Function
52			
53 | 58	P11 | P16	O	FL anode drive signal and key scan signal
59 | 63	KEY1 | KEY4	I	Operation key signal input
64	POWER SW	I	Power key switch signal input
65	MLD	O	Microprocessor command load signal
66	MCLK	O	Microprocessor command clock
67	MDATA	O	Microprocessor command data
68	STAT	I	Status signal input
69	OSW	I	Disc tray open detect switch input
70	SQCK	O	External clock for sub-code Q resister
71	NC	-	Not used, open
72	SUBQ	I	Sub-code Q data input
73	AVSS	-	GND terminal
74	VREF	-	Not used, open
75	S RST	O	Reset signal output
76	BLKCK	I	Sub-cede block clock signal
77	LCH	O	Traverse drive signal output
78	LOL	O	Traverse drive signal output
79	CLL	O	Traverse drive signal output
80	OPH	O	Traverse drive signal output

15.2. IC701(AN8885SBE1): / Servo Amp

Pin No.	Terminal Name	I/O	Function
1	PDE	I	Tracking signal input (1) terminal
2	PDF	I	Tracking signal input (2) terminal
3	Vcc	I	Power supply terminal
4	PDA	I	Focus signal input (1) terminal
5	PDB	I	Focus signal input (2) terminal
6	LPD	I	APC amplifier input terminal
7	LD	O	APC amplifier output terminal
8	RF	O	RF addition output terminal
9	RF IN	I	RF detection signal input terminal
10	CSBRT	I	Capacitor connection terminal for OFTR (Connected to power supply through capacitor)
11	CEA	I	HPF amplifier capacitor connection input terminal (Connected to power supply through capacitor)
12	BDO	O	Dropout signal output terminal
13	LDON	I	APC control input terminal
14	GND	-	GND
15	/RFDET	O	RF detection signal output terminal
16	PDOWN	O	Reduced voltage detection signal output terminal
17	OFTR	O	Off-track signal output terminal
18	DEFLVL	I	Laser intermittent drive ON/OFF signal input
19	ENV	O	RF envelope signal output terminal
20	GCLT	I	Crystal frame clock
21	EQSW	-	Not used, connected to GND
22	TE N	I	Tracking error amplifier input terminal
23	TE OUT	O	Tracking error amplifier output terminal
24	FE OUT	O	Focus error amplifier output terminal
25	FE N	I	Focus error amplifier input terminal
26	VREF	O	Reference voltage output terminal
27	TBAL	I	Tracking balance signal input terminal

Pin No.	Terminal Name	I/O	Function
28	FBAL	I	Focus balance signal input terminal

15.3. IC702 (MN662790RSC): / Servo Processor/Digital Signal Processor/ Digital Filter/ / D/A converter

Pin No.	Terminal Name	I/O	Function
1	BCLK	-	Serial bit clock output (Not used, open)
2	LRCK	-	L/R discriminating signal output (Not used, open)
3	SRDATA	-	Serial data signal output (Not used, open)
4	DV_{DD} 1	I	Power supply terminal
5	DV_{SS} 1	-	GND terminal
6	TX	O	Digital audio interface signal output
7	MCLK	I	Command clock signal input
8	MDATA	I	Command data signal input
9	MLD	I	Command load signal input
10	SENSE	-	Sense signal (Not used, open)
11	/FLOCK	-	Optical servo condition (focus) (Not used, open)
12	/TLOCK	-	Optical servo condition (tracking) (Not used, open)
13	BLKCK	O	Sub-code block clock signal output (f=75 Hz)
14	SQCK	I	Sub-code Q resistor clock signal input
15	SUBQ	O	Sub-code Q data signal output
16	DMUTE	I	Muting input (Not used, connected to GND)
17	STAT	O	Status signal output
18	/RST	I	Reset signal input (L: reset)
19	SMCK	-	System clock (Not used, open)
20	CSEL	I	Frequency control terminal of crystal oscillator (Connected to GND)
21	TRV	-	Traverse servo control signal output (Not used, open)

Pin No.	Terminal Name	I/O	Function
22	TVD	O	Traverse drive signal output
23	PC	O	Turntable motor drive signal output (L: ON)
24	ECM	O	Turntable motor drive signal output (Forced mode)
25	ECS	O	Turntable motor drive signal output (Servo error signal)
26	KICK	-	Kick pulse output (Not used, open)
27	TRD	O	Tracking drive signal output
28	FOD	O	Focus drive signal output
29	VREF	I	D/A drive output normal voltage input
30	FBAL	O	Focus balance adj. output
31	TBAL	O	Tracking balance adj. output
32	FE	I	Focus error signal input
33	TE	I	Tracking error signal input
34	RFENV	I	RF envelope signal input
35	VDET	I	Oscillator detect signal input (H: detect)
36	OFT	I	Off track signal input (H: Off track)
37	TRCRS	I	Track cross signal input
38	/RFDET	I	RF detect signal input (L: detect)
39	BDO	I	Dropout detection signal input (H: dropout)
40	LDON	O	Laser power control signal output (H: ON)
41	PLLF2	-	PLL loop filter terminal (Not used, open)
42	DSLF2	O	DSL loop filter terminal
43	WVEL	-	Double velocity status signal output (Not used, open)
44	ARF	I	RF signal input
45	IREF	I	Reference current input
46	DRF	I	DSL bias terminal
47	DSLF	I/O	DSL loop filter terminal
48	PLLF	I/O	PLL loop filter terminal
49	VCOF	-	VCO loop filter terminal (Not used, connected to GND)
50	AV_{DD} 2	I	Power supply terminal
51	AV_{SS} 2	-	GND terminal
52	EFM	-	EFM signal (Not used, open)

Pin No.	Terminal Name	I/O	Function
53	PCK	-	PLL extract clock (Not used, open)
54	VCOF2	-	VCO loop filter terminal (Not used, connected to GND)
55	SUBC	-	Sub-code serial output clock (Not used, open)
56	SBCK	-	Sub-code serial input data (Not used, connected to GND)
57	V_{SS}	-	GND terminal
58	X1 IN	I	Crystal oscillator terminal (F= 16.9344 MHz)
59	X2 OUT	O	
60	V_{DD}	I	Power supply terminal
61	BYTCK	-	Byte clock signal (Not used, open)
62	/CLDCK	-	Sub-code frame clock signal (Not used, open)
63	FCLK	O	Crystal frame clock
64	IPFLAG	-	Interpolation flag terminal (Not used, open)
65	FLAG	-	Flag terminal (Not used, open)
66	CLVS	-	Turntable servo phase synchro signal (Not used, open)
67	CRC	-	Sub-code CRC check terminal (Not used, open)
68	DEMPH	-	De-emphasis ON signal (Not used, open)
69	RESY	-	Re-synchronizing signal of frame sync. (Not used, open)
70	IOSEL	I	I/O select signal input (Connected to V_{DD})
71	/TEST	I	Test terminal (Not used, connected to power supply)
72	AV_{DD} 1	I	Power supply terminal
73	OUTL	O	L ch audio signal output
74	AV_{SS} 1	-	GND terminal
75	OUTR	O	R ch audio signal output
76	RSEL	I	Polarity direction control terminal of RF signal (Not used, connected to power supply)
77	IOV_{DD}	I	Power supply terminal
78	PSEL	I	Test terminal (Connected to GND)

Pin No.	Terminal Name	I/O	Function
79	MSEL	I	Output frequency select signal input (Connected to GND)
80	SSEL	I	SUBQ output mode select signal input (Not used, connected to V_{DD})

15.4. IC703 (BA5948FPE2): / Focus Coil/Tracking Coil/ / Traverse Motor/ Spindle / Motor Drive

Pin No.	Terminal Name	I/O	Function
1	IN2	I	Traverse motor drive signal input
2	PC	-	Not used, connected to GND
3	IN1	I	Spindle motor control signal input / (Servo control)
4	PC1	I	Spindle motor control signal input
5 | 8	NC	-	Not used, open
9	PGND	-	GND
10	PV_{CC} 1	I	Power supply terminal 1
11	D1-	O	Spindle motor driver 1 output terminal (-)
12	D1+	O	Spindle motor driver 1 output terminal (+)
13	D2-	O	Traverse motor driver 2 output terminal (-)
14	D2+	O	Traverse motor driver 2 output terminal (+)
15	D3-	O	Focus coil signal output terminal (-)
16	D3+	O	Focus coil signal output terminal (+)
17	D4-	O	Tracking coil signal output terminal (-)
18	D4+	O	Tracking coil signal output terminal (+)
19	PV_{CC} 2	I	Power supply terminal 2
20	PGND	-	GND
21	NC	-	Not used, connected to V_{CC}

Pin No.	Terminal Name	I/O	Function
22 | 24	NC	-	Not used, open
25	Vcc	I	Power supply terminal
26	VREF	I	Reference voltage input terminal
27	IN4	I	Tracking drive signal input
28	IN3	I	Focus drive signal input

16. Replacement Parts List

Notes:

- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
  When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
- The parenthesized indications in Remarks columns specify the area. (Refer to the cover page for the area.)
- The <IA> <IB> <IC> and <ID> marks in Remarks indicate language of instruction manual.
  <IA>: German, Italian, French
  <IB>: Netherlands, Danish
  <IC>: English
  <ID>: English, Spanish, Swedish
- The marking [RTL] indicates that Retention Time is Limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependenton the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.
- The marking <MAVD> indicates in Remarks columns parts that are supplied by MAVD.
- Other all parts are supplied by MESA.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RKM0098A-K	TOP CABINET	1	<MAVD>
2	RYP0979Z-K	FRONT PANEL ASS'Y	1	<MAVD>
2-1	RGU1948-K	BUTTON,MAIN	1	<MAVD>
2-2	RGU1950-K	BUTTON,SUB	1	<MAVD>
2-3	RGU1949-K	BUTTON,OPERATION	1	<MAVD>
2-4	RGP0844B-K	FRONT PANEL	1	<MAVD>
3	RGU1029-K	BUTTON,POWER	1	
4	RGL0267-Q	LED INDICATOR	1	
5	RHD26021	SCREW	11	
6	RKA0040B-K1	FOOT	2	
6-1	RMG0384-T	RUBBER	2	<MAVD>
7	XTBS3+8JFZ1	SCREW	7	
8	XTBR3+20JFZ	SCREW	1	
9	RHD30053	SCREW	3	
10	RMR1353-W	SPACER	2	<MAVD>
11	REX1054	WIRE CABLE(2P)	1	<MAVD> ⚠
12	XTB3+8JFZ	SCREW	9	
13	XTB3+10JFZ	SCREW	4	
14	RHD30035-K1	SCREW	4	
15	RMR1354-W	HOLDER	1	<MAVD>
16	RGK1338-K	TRAY LID	1	<MAVD>
17	REZ1348	FFC CABLE(19P)	1	<MAVD>
18	REZ1349	FFC CABLE(22P)	1	<MAVD>
19	RGN1976-K	NAME PLATE	1	(E)<MAVD>
20	RMV0212	SHEET	3	<MAVD>
21	RMG0384-T	RUBBER	2	<MAVD>
22	RMN0629	HOLDER	1	<MAVD>
23	RGW0048-K	KNOB,HP VOLUME	1	
24	RWJ6507400XX	FLAT WIRE(7P)	1	<MAVD>
301	RAE0155Z	TRAVERSE UNIT	1	⚠
302	RDG0455	TRV GEAR (A)	1	
303	RDG0456	TRV GEAR (B)	1	
304	RFKNCT100	TRV BASE ASS'Y	1	
304-1	RDG0457	LOAD GEAR (A)	1	
304-2	RDG0458	LOAD GEAR (B)	1	
304-3	RDG0459	LOAD GEAR (C)	1	
304-4	RME0290	SPRING	1	
304-5	RME0291	SPRING	1	
304-6	RML0551	LEVER	1	
304-7	RML0552	LEVER	1	
304-8	RMM0219	STOPPER	1	
304-9	XQN17+C28F	SCREW	2	
304-10	RXQ0632	TRV MOTOR UNIT	1	
305	RDG0460	CAM GEAR	1	
306	RDG0461	DRIVE GEAR	1	
307	RGQ0254-K	TRAY	1	
308	RHM245ZA	MAGNET	1	
309	RMB0603	SPRING	1	
310	RME0288	SPRING	1	
311	RFKNXED50-S	CLAMPER HOLDER / ASS'Y	1	
312	RMG0510-K	FLOATING RUBBER (A)	2	
313	RMG0511-K	FLOATING RUBBER (B)	1	
314	RMK0422	MECHA CHASSIS	1	
315	RMM0218	TRV DRIVE RACK	1	
316	RHD30083	SCREW	1	
317	RMR1223-K	CLAMP PLATE	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
318	RMR1242-X1	FIXED PLATE	1	
319	RSH1A049-U	SWITCH,OPEN(S790)	1	K0F111E00093
320	XTN2+6G	SCREW	4	
321	RXQ0704	OPTICAL PICK-UP / ASS'Y	1	⚠
A1	EUR645275	REMOTE CONTROL	1	<MAVD>
A1-1	UR64EC1987	BATTERY COVER	1	
A2	RJA0043-1C	AC POWER SUPPLY / CORD	1	(E,EG)<MAVD> / ⚠
A2	RJA0044-3C	AC POWER SUPPLY / CORD	1	(EB)<MAVD> / ⚠
A3	RJL2P004B08A	PIN CORD	1	
A4	RQT5696-D	INSTRUCTION MANUAL	1	(EG)<IA> / <MAVD>
A4	RQT5697-H	INSTRUCTION MANUAL	1	(EG)<IB> / <MAVD>
A4	RQT5698-B	INSTRUCTION MANUAL	1	(E,EB)<IC> / <MAVD>
A4	RQT5699-E	INSTRUCTION MANUAL	1	(E)<ID> / <MAVD>
A5	RQCB0169	SERVICE CENTER LIST	1	
C1-C3	ECBT1H104ZF5	50V 0.1U	3	F1E1H104A001
C10	ECBT1H104ZF5	50V 0.1U	1	F1E1H104A001
C11	ECA1CM222	2200U	1	⚠
C12	ECBT1C103NS5	16V 0.01U	1	
C14	ECEA0JKS101	6.3V 100U	1	
C15	ECA1EM101	100U	1	⚠
C16	ECA1EM331B	330U	1	⚠
C17,18	ECA1HM101	100U	2	⚠
C19-21	ECA1EM101	25V 100U	3	
C22	ECA1AM331	10V 330U	1	
C23	ECBT1H102KB5	50V 1000P	1	F1D1H102A012
C24	ECEA0JKS470	6.3V 47U	1	
C25	ECBT1H104ZF5	50V 0.1U	1	F1E1H104A001
C26,27	ECBT1H102KB5	50V 1000P	2	F1D1H102A012
C51	ECEA1HKS2R2	50V 2.2U	1	
C61	ECBT1C103NS5	16V 0.01U	1	
C311	ECBT1H104ZF5	50V 0.1U	1	F1E1H104A001
C403	ECBT1C103NS5	16V 0.01U	1	
C405	ECEA0JKS101	6.3V 100U	1	
C452-55	ECBT1H150JC5	50V 15P	4	
C601,02	ECUV1E103KBV	25V 0.01U	2	
C651	ECEA0JKS470	6.3V 47U	1	
C701	ECEA0JKA330I	6.3V 33U	1	
C702	ECUV1C104KBV	16V 0.1U	1	F1H1C104A042
C703	ECEA0JKS101	6.3V 100U	1	
C704	ECUV1C104KBV	16V 0.1U	1	F1H1C104A042
C706	ECUV1H272KBV	50V 2700P	1	
C707	ECUV1E273KBV	25V 0.027U	1	
C710	ECUV1H121JCV	50V 120P	1	
C711-13	ECUV1C104KBV	16V 0.1U	3	F1H1C104A042
C714	ECEA0JKS101	6.3V 100U	1	
C715	ECUV1H272KBV	50V 2700P	1	
C716	ECUV1H821KBV	50V 820P	1	
C717	ECUV1E104ZFV	25V 0.1U	1	
C718	ECUV1A224KBV	10V 0.22U	1	F1H1A224A001
C721,22	ECUV1H100JCV	50V 10P	2	F1H1H100A244
C723	ECEA1AKS221	10V 220U	1	
C724	ECUV1C104KBV	16V 0.1U	1	F1H1C104A042

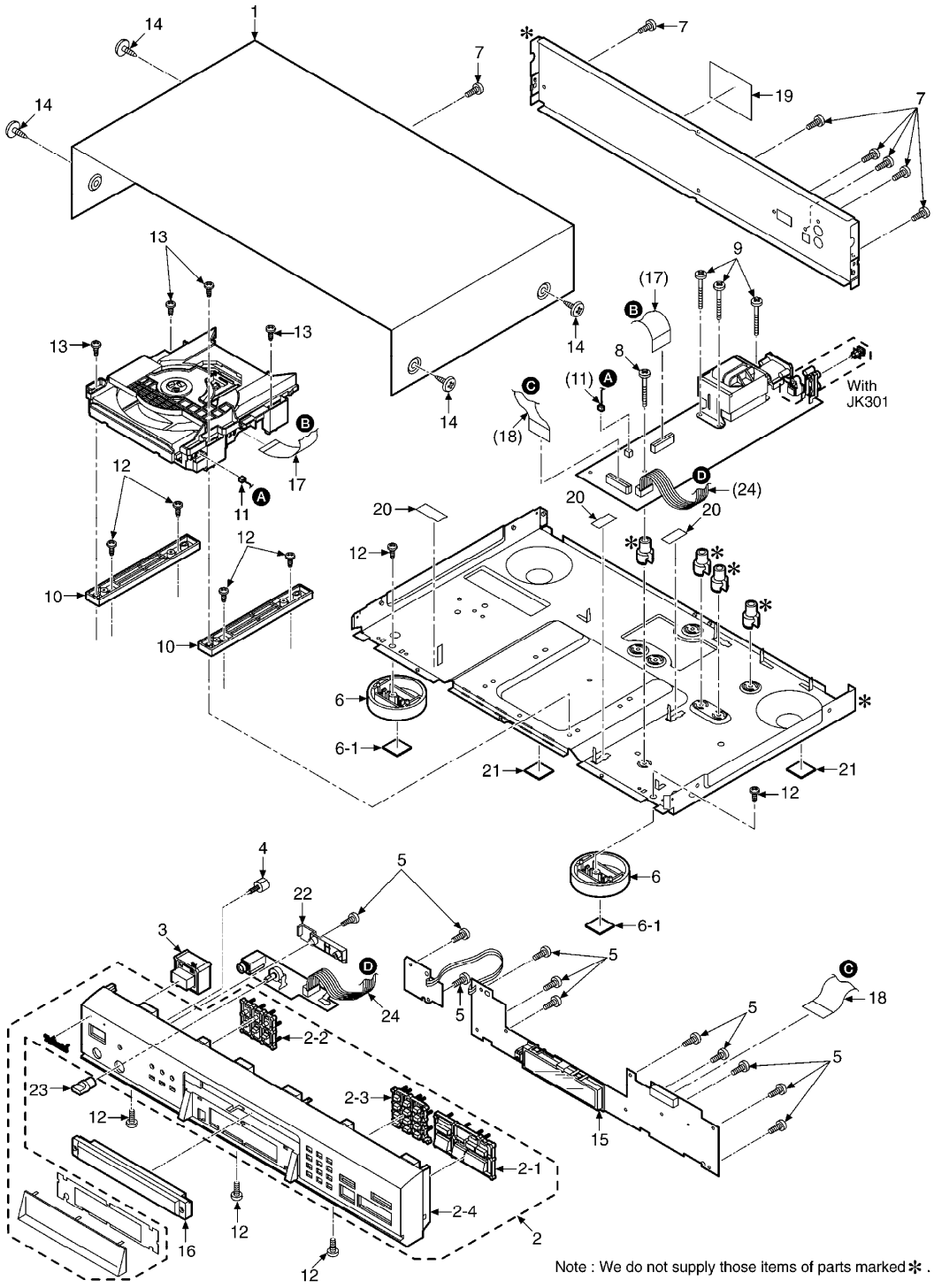
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C725,26	ECUV1H102KBV	50V 1000P	2	
C727,28	ECA1HAK010XI	50V 1U	2	
C730	ECUV1E104ZFV	25V 0.1U	1	
C731	ECA0JAK221XI	6.3V 220U	1	
C732	ECEA1AKS221	10V 220U	1	
C733	ECUV1C104KBV	16V 0.1U	1	F1H1C104A042
C734	ECEA1AKS221	10V 220U	1	
C735-37	ECUV1E104ZFV	25V 0.1U	3	
C738	ECUV1C563KBV	16V 0.056U	1	
C739	ECUV1H222KBV	50V 2200P	1	
C742	ECUV1E273KBV	25V 0.027U	1	
C743	ECUV1E104ZFV	25V 0.1U	1	
C744	ECUV1H562KBV	50V 5600P	1	
C745	ECUV1E104ZFV	25V 0.1U	1	
C747	ECUV1H181JCV	50V 180P	1	
C749	ECUV1H222KBV	50V 2200P	1	
C750,51	ECUV1C104KBV	16V 0.1U	2	F1H1C104A042
C752	ECUV1H152KBV	50V 1500P	1	
C753,54	ECUV1H471KBV	50V 470P	2	F1H1H471A013
C769	ECUV1A224KBV	10V 0.22U	1	F1H1A224A001
C803-06	ECBT1H391KB5	50V 390P	4	F1D1H391A012
C807,08	ECEA0JKS470	6.3V 47U	2	
C809,10	ECBT1H102KB5	50V 1000P	2	F1D1H102A012
C817	ECBT1H104ZF5	50V 0.1U	1	F1E1H104A001
C871,72	ECEA1EKN3R3B	25V 3.3U	2	
C873-80	ECUV1E103KBV	25V 0.01U	8	
C881,82	ECEA1AN101XB	10V 100U	2	
CN401	RJS1A6819	CONNECTOR(19P)	1	K1MN19A00013
CN402	RJP2G18ZA	CONNECTOR(2P)	1	K1KA02A00229
CN411	RJS1A6822	CONNECTOR(22P)	1	K1MN22A00020
CN611	RJS1A6222-1	CONNECTOR(22P)	1	K1MN22C00001
CN701	RJS2A8616	CONNECTOR(16P)	1	
CN702	RJS1A9319	CONNECTOR(19P)	1	
CN871	RJS7T4ZA	CONNECTOR(7P)	1	K1MP07A00005
CN891	RJS7T4ZA	CONNECTOR(7P)	1	K1MP07A00005
D11-18	1D3-E	DIODE	8	⚠
D19	MA4330M	DIODE	1	MAZ43300M / ⚠
D20	RVD1SS133TA	DIODE	1	B0AACK000004
D21,22	MA4082M	DIODE	2	MAZ40820M / ⚠
D23	MA4160M	DIODE	1	MAZ41600M / ⚠
D25,26	RVD1SS133TA	DIODE	2	B0AACK000004
D51	1SS355TE17	DIODE	1	B0ACCK000005
D61,62	RVD1SS133TA	DIODE	2	B0AACK000004
D63	MA4051M	DIODE	1	MAZ40510M
D401	MA4056M	DIODE	1	MAZ40560M / ⚠
D402	1D3-E	DIODE	1	
D601-06	1SS355TE17	DIODE	6	B0ACCK000005
D621,22	1SS355TE17	DIODE	2	B0ACCK000005
D651	SLR325LCT31	LED	1	<MAVD>
D750	MA8056M	DIODE	1	MAZ80560M
D801-04	RVD1SS133TA	DIODE	4	B0AACK000004
D861	RVD1SS133TA	DIODE	1	B0AACK000004

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
FC651	RWJ1803150KK	FLAT CABLE(3P)	1	
FL601	A2BA00000207	FL DISPLAY	1	<MAVD>
IC11	LM2940T5	IC	1	C0CAADG00019 /
IC12	C0CAABE00007	IC	1	
IC601	C2BBFE000100	IC	1	<MAVD>
IC651	B3MAZ0000023	IC	1	<MAVD>
IC701	AN8885SBE1	IC	1	
IC702	MN662790RSC	IC	1	
IC703	BA5948FPE2	IC	1	
IC801	BA4560FE2	IC	1	
IC871	BA4560FE2	IC	1	
JK301	T0TX178A	JACK,DIGITAL / OPT.OUT	1	B3RAE0000007
JK801	SJF3068-11N	JACK,LINE OUT	1	<MAVD>
JK871	QJA0455ZC-A	JACK,PHONES	1	K2HB103B0017
JK1001	SJS9236-1	JACK,AC IN	1	K2AA2B000002 /
L871,72	RLQZN3R3KL-D	COIL	2	
L874	RLQZN4R7KL-D	COIL	1	
P1	RPG5205	PACKING CASE	1	<MAVD>
P2	RPN1369	CUSHION	1	<MAVD>
P3	XZB23X35C04Y	BAG	1	<MAVD>
P4	SPP730	PROTECTION SHEET	1	
PCB1	REP3110B-M	MAIN PCB ASS'Y	1	[RTL]<MAVD>
PCB2	REP3135A-S	HP PCB ASS'Y	1	[RTL]<MAVD>
PCB3	REP3111A-S	OPERATION PCB ASS'Y	1	[RTL]<MAVD>
Q11	2SD2137PQTA	TRANSISTOR	1	2SD21370PA /
Q12	2SD1862QRTV6	TRANSISTOR	1	B1BACD000012 /
Q13	2SB1240-P	TRANSISTOR	1	
Q14,15	2SA1048GR	TRANSISTOR	2	
Q16	2SB1238QSTV6	TRANSISTOR	1	
Q19,20	2SD1450S	TRANSISTOR	2	2SD14500S
Q21	DTA124ESTP	TRANSISTOR	1	B1GCCFLL0003
Q22	2SC2458GR	TRANSISTOR	1	
Q51	DTC114EUT106	TRANSISTOR	1	B1GBCFJJ0009
Q402	2SD1862QRTV6	TRANSISTOR	1	B1BACD000012 /
Q421	2SA1048GR	TRANSISTOR	1	
Q422	2SC2458GR	TRANSISTOR	1	
Q451-53	DTC143ESTP	TRANSISTOR	3	
Q701	2SA1037AKSTX	TRANSISTOR	1	
Q801,02	2SD1450S	TRANSISTOR	2	2SD14500S
Q803,04	2SC2458GR	TRANSISTOR	2	
Q851	DTC124EST	TRANSISTOR	1	B1GACFLL0006
Q853	B1GCCFJJ0008	TRANSISTOR	1	<MAVD>
Q871,72	2SD1328QRSTX	TRANSISTOR	2	2SD13280WL
R1	ERQ16NKWR15E	0.15	1	
R12,13	ERDS2FJ102	1/4W 1K	2	
R14	ERDS2FJ103	1/4W 10K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R15	ERDS2FJ822	1/4W 8.2K	1	
R16	ERDS2FJ680	1/4W 68	1	
R17	ERDS2FJ331	1/4W 330	1	
R18	ERDS2FJ473	1/4W 47K	1	
R19	ERDS2FJ472	1/4W 4.7K	1	
R23	ERDS2FJ103	1/4W 10K	1	
R28-30	ERDS2FJ103	1/4W 10K	3	
R51	ERJ6GEYJ104V	1/10W 100K	1	
R61,62	ERDS2FJ222	1/4W 2.2K	2	
R63	ERDS2FJ103	1/4W 10K	1	
R311	ERDS2FJ331	1/4W 330	1	
R401	ERDS2FJ102	1/4W 1K	1	
R405,06	ERDS2FJ221	1/4W 220	2	
R407	ERDS2FJ101	1/4W 100	1	
R408,09	ERDS2FJ103	1/4W 10K	2	
R413	ERDS2FJ102	1/4W 1K	1	
R421,22	ERDS2FJ102	1/4W 1K	2	
R423	ERDS2FJ393	1/4W 39K	1	
R424	ERDS2FJ101	1/4W 100	1	
R451-55	ERDS2FJ472	1/4W 4.7K	5	
R456-66	ERDS2FJ103	1/4W 10K	11	
R601-06	ERJ6GEYJ473V	1/10W 47K	6	
R607,08	ERJ6GEYJ104V	1/10W 100K	2	
R611-14	ERJ6GEYJ150V	1/10W 15	4	D0GD150JA003
R621,22	ERJ6GEYJ102V	1/10W 1K	2	
R631-38	ERJ6GEYJ103V	1/10W 10K	8	
R651	ERJ6GEYJ221V	1/10W 220	1	
R652	ERJ6GEYJ103V	1/10W 10K	1	
R701	ERJ3GEYJ4R7V	1/16W 4.7	1	
R702	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R704	ERJ3GEYJ102V	1/16W 1K	1	
R705	ERJ3GEYJ154V	1/16W 150K	1	
R706	ERJ3GEYJ102V	1/16W 1K	1	
R707	ERJ3GEYJ393V	1/16W 39K	1	D0GB393JA002
R708	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R709	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R711	ERJ3GEYJ823V	1/16W 82K	1	D0GB823JA002
R712	ERJ3GEYJ221V	1/16W 220	1	
R714	ERJ3GEYJ101V	1/16W 100	1	
R715	ERJ3GEYJ102V	1/16W 1K	1	
R717,18	ERJ3GEYJ102V	1/16W 1K	2	
R721	ERJ3GEYJ101V	1/16W 100	1	
R723	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R724	ERJ3GEYJ153V	1/16W 15K	1	
R725	ERJ3GEYJ681V	1/16W 680	1	D0GB681JA002
R727	ERJ3GEYJ272V	1/16W 2.7K	1	
R728	ERJ3GEYJ222V	1/16W 2.2K	1	
R729	ERJ3GEYJ272V	1/16W 2.7K	1	
R731	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R732	ERJ3GEYJ102V	1/16W 1K	1	
R735,36	ERJ3GEYJ101V	1/16W 100	2	
R741	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R742	ERJ3GEYJ224V	1/16W 220K	1	D0GB224JA002
R744	ERJ3GEYJ124V	1/16W 120K	1	D0GB124JA002
R749	ERJ3GEYJ272V	1/16W 2.7K	1	
R753	ERJ3GEYJ100V	1/16W 10	1	
R754	ERJ3GEYJ5R6	1/16W 5.6	1	<MAVD>

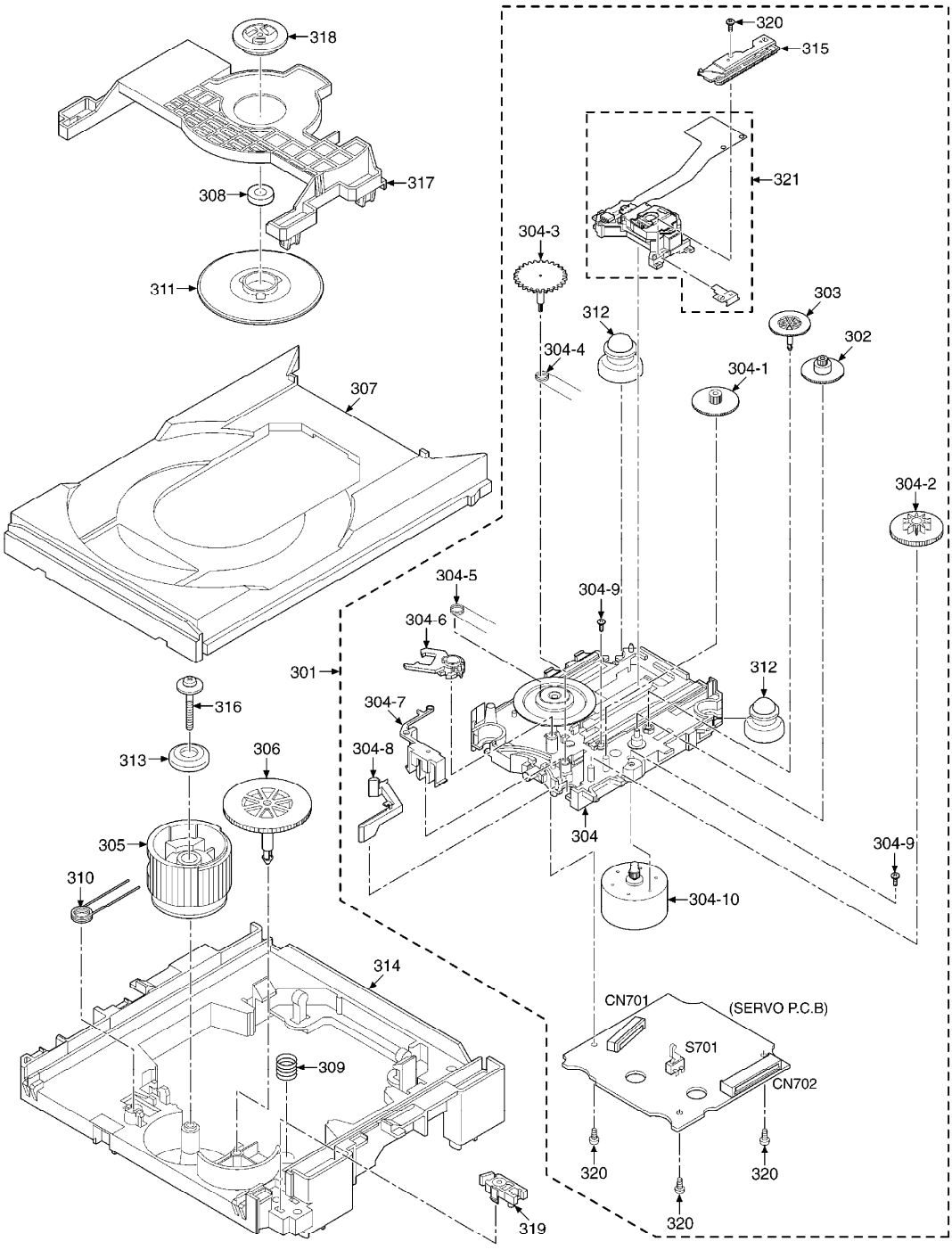
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R760	ERJ3GEYJ221V	1/16W 220	1	
R761	ERJ3GEYJ472V	1/16W 4.7K	1	D0GB472JA002
R801,02	ERDS2FJ102	1/4W 1K	2	
R803,04	ERDS2FJ224	1/4W 220K	2	
R805,06	ERDS2FJ472	1/4W 4.7K	2	
R807,08	ERDS2FJ682	1/4W 6.8K	2	
R809,10	ERDS2FJ333	1/4W 33K	2	
R811,12	ERDS2FJ683	1/4W 68K	2	
R813,14	ERDS2FJ331	1/4W 330	2	
R815,16	ERDS2FJ102	1/4W 1K	2	
R817,18	ERDS2FJ473	1/4W 47K	2	
R819,20	ERDS2FJ100	1/4W 10	2	
R821,22	ERDS2FJ471	1/4W 470	2	
R823,24	ERDS2FJ103	1/4W 10K	2	
R825,26	ERDS2FJ123	1/4W 12K	2	
R851	ERDS2FJ102	1/4W 1K	1	
R852	ERDS2FJ222	1/4W 2.2K	1	
R871,72	ERJ6GEYJ473V	1/10W 47K	2	
R873-76	ERJ6GEYJ104V	1/10W 100K	4	
R885,86	ERJ6GEYJ222V	1/10W 2.2K	2	
R887,88	ERJ6GEYJ101V	1/10W 100	2	
R889,90	ERJ6GEYJ473V	1/10W 47K	2	
RJ601-22	ERJ6GEY0R00V	CHIP JUMPER	22	
RJ701-03	ERJ3GEY0R00V	CHIP JUMPER	3	
RJ709-16	ERJ3GEY0R00V	CHIP JUMPER	8	
RJ722-24	ERJ3GEY0R00V	CHIP JUMPER	3	
RJ726-28	ERJ3GEY0R00V	CHIP JUMPER	3	
RJ731,32	ERJ3GEY0R00V	CHIP JUMPER	2	
RJ734	ERJ3GEY0R00V	CHIP JUMPER	1	
S601	EVQ21405R	SW,TIME MODE	1	EVQ21405RJ
S604-15	EVQ21405R	SW,PUSH	12	EVQ21405RJ
S620-30	EVQ21405R	SW,PUSH	11	EVQ21405RJ
S651	EVQ21405R	SW,POWER	1	EVQ21405RJ
S701	RSH1A048-A	SW,REST	1	
S790	RSH1A049-U	SW,OPEN	1	
T1	ETP50JFV61DA	POWER TRANSFORMER	1	<MAVD>
VR871	EWCU1A016A15	VR,PHONES	1	
X601	H2D400400006	OSCILLATOR	1	<MAVD>
X701	RSXC16M9S04	OSCILLATOR	1	

17. Cabinet Parts Location

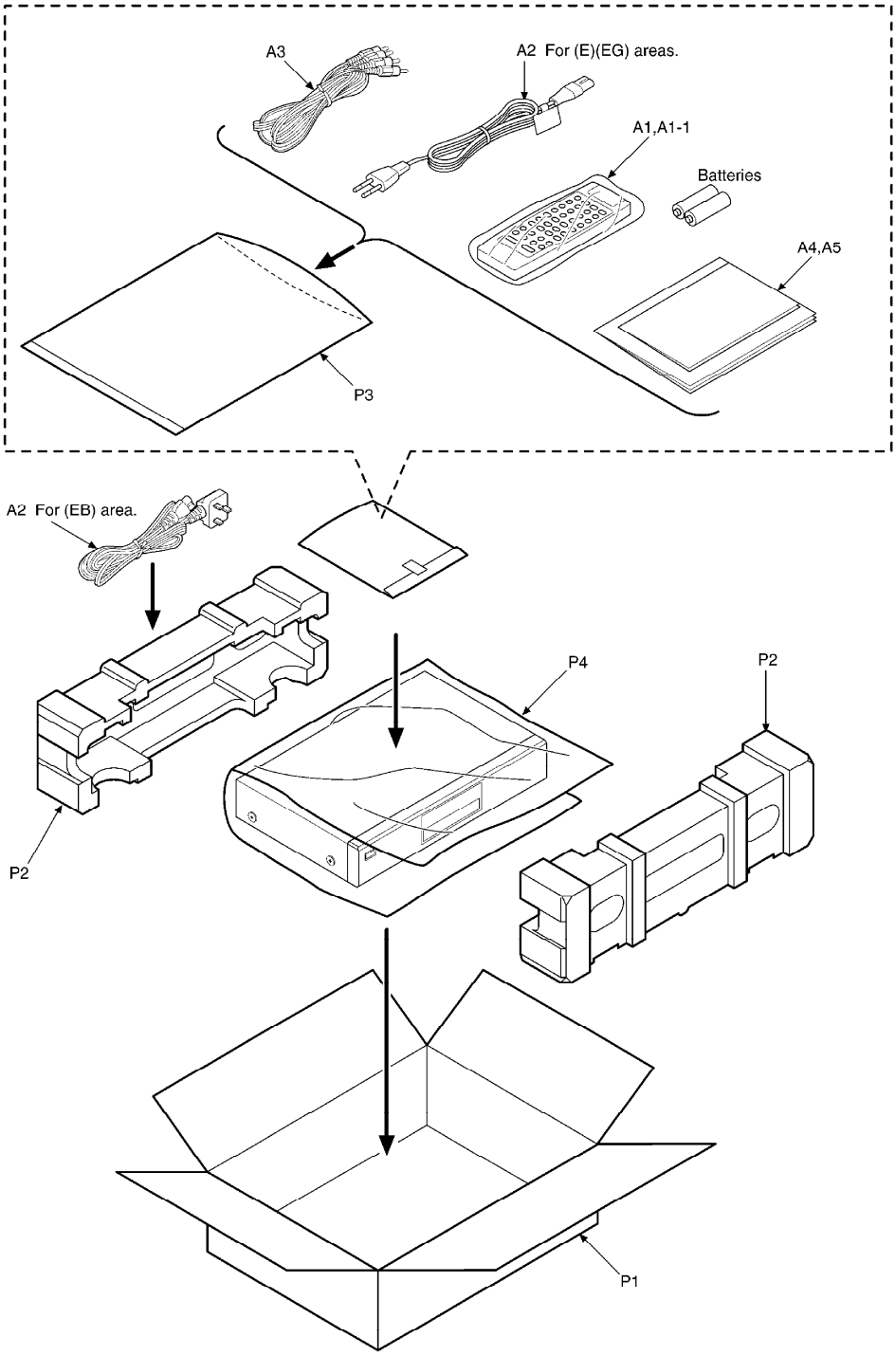


Note : We do not supply those items of parts marked ✻ .

18. Loading Unit Parts Location



19. Packaging



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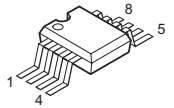
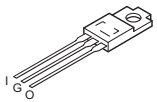
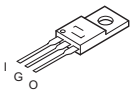
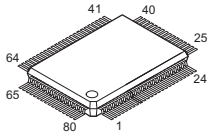
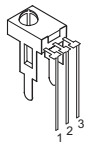
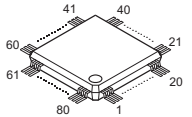
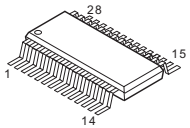
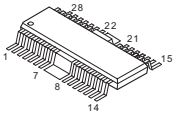
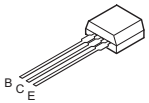
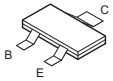
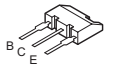
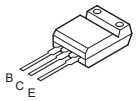
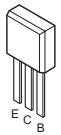
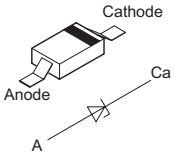
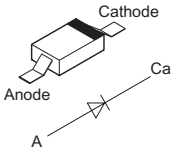
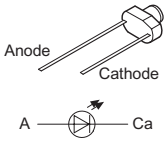
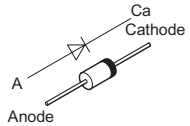
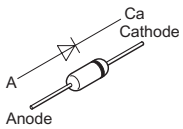
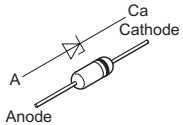
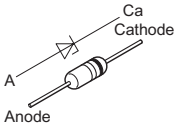
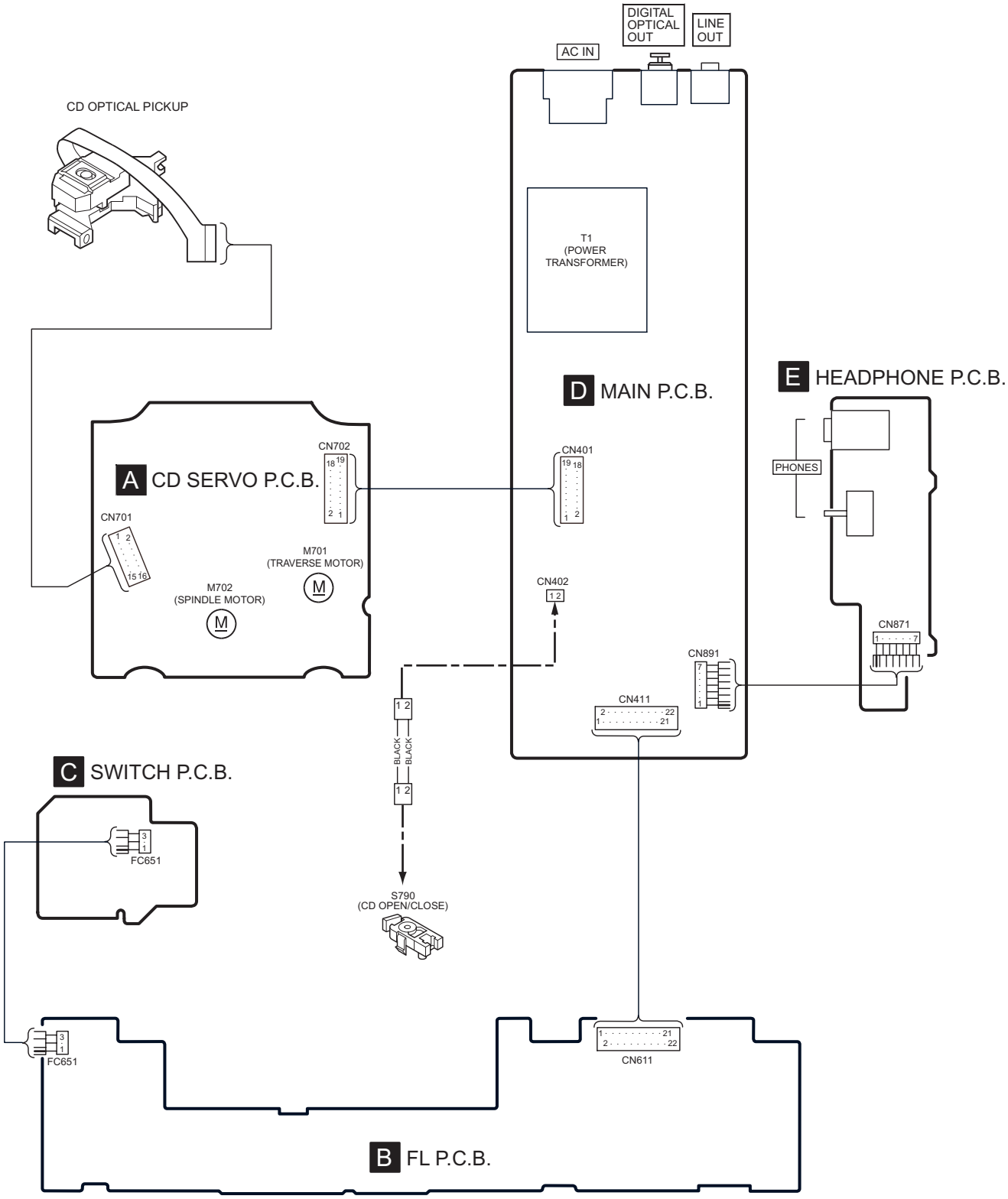
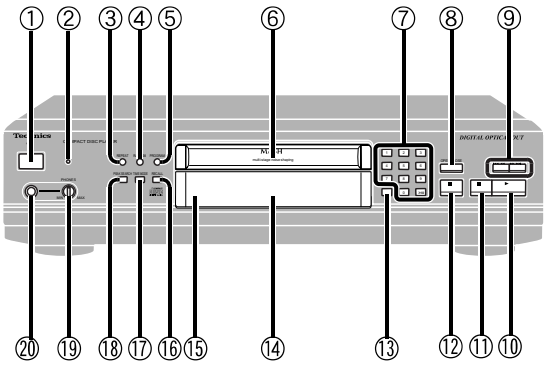
BA4560FE2 	C0CAABE00007 	LM2940T5 	C2BBFE000100 	B3MAZ0000023 	MN662790RSC 
AN8885SBE1 	BA5948FPE2 		2SC2458GR 2SA1048GR B1GCCFJJ0008 DTC143ESTP DTA124ESTP DTC124ESTP	2SA1037AKSTX 2SD1328QRSTX DTC114EUT106 	2SD1862QRTV6 2SB1238QSTV6 2SB1240-P 
2SD2137PQTA 	2SD1450S 	MA8056MTX 	1SS355TE17 	SLR325LCT31 	1D3-E 
RVD1SS133TA 	MA4330MTA MA4160MTA 	MA4056MTA MA4082MTA MA4051MTA 			


DIGITAL OPTICAL OUT
LINE OUT
AC IN
CD OPTICAL PICKUP
T1
(POWER
TRANSFORMER)
D MAIN P.C.B.
E HEADPHONE P.C.B.
PHONES
A CD SERVO P.C.B.
CN702
CN401
CN701
M701
(TRAVERSE MOTOR)
M702
(SPINDLE MOTOR)
CN402
CN871
CN891
CN411
BLACK
BLACK
C SWITCH P.C.B.
FC651
S790
(CD OPEN/CLOSE)
FC651
CN611
B FL P.C.B.

A



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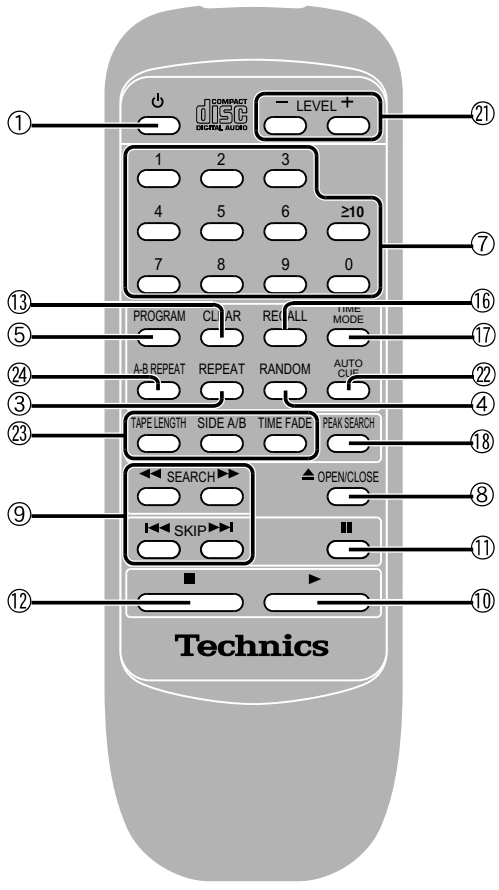


A Main unit

No. Name

① **Standby/on switch (⏻ / I)**
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.

② **Standby indicator (⏻)**
When the unit is connected to the AC mains supply, this indicator lights up in standby mode and goes out when the unit is turned on.

③ **Repeat button (REPEAT)**
④ **Random play button (RANDOM)**
⑤ **Program button (PROGRAM)**
⑥ **Disc tray**
⑦ **Numeric buttons (1–9, 0, ≥10)**
⑧ **Disc tray open/close button (⏏ OPEN/CLOSE)**
⑨ **Skip/search buttons (⏮/◀◀ , ▶▶/⏭)**
⑩ **Play button (▶)**
⑪ **Pause button (⏸)**
⑫ **Stop button (■)**
⑬ **Clear button (CLEAR)**
⑭ **Display panel**
⑮ **Remote control signal sensor**
⑯ **Program recall button (RECALL)**
⑰ **Time mode select button (TIME MODE)**
⑱ **Peak search button (PEAK SEARCH)**
⑲ **Headphones volume control (PHONES)**
⑳ **Headphones jack**

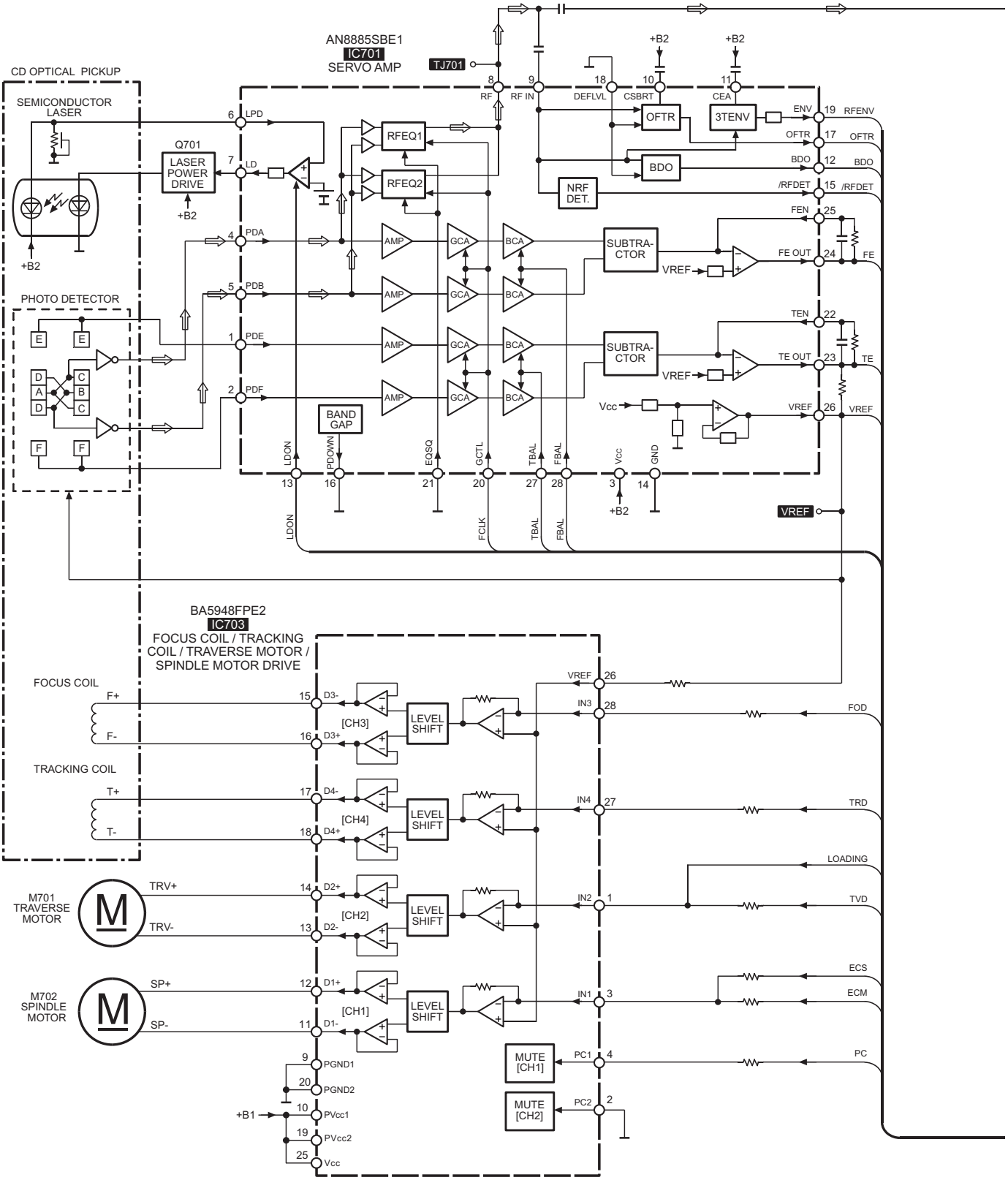
B Remote control

With the exception of buttons ㉑ to ㉔, the buttons on the remote control function the same as the buttons on the main unit.

No. Name

㉑ **Level control (– LEVEL +)**
㉒ **Auto cue button (AUTO CUE)**
㉓ **CD edit record buttons**
- **Tape length button (TAPE LENGTH)**
- **Tape side select button (SIDE A/B)**
- **Time fade button (TIME FADE)**

㉔ **A-B repeat button (A-B REPEAT)**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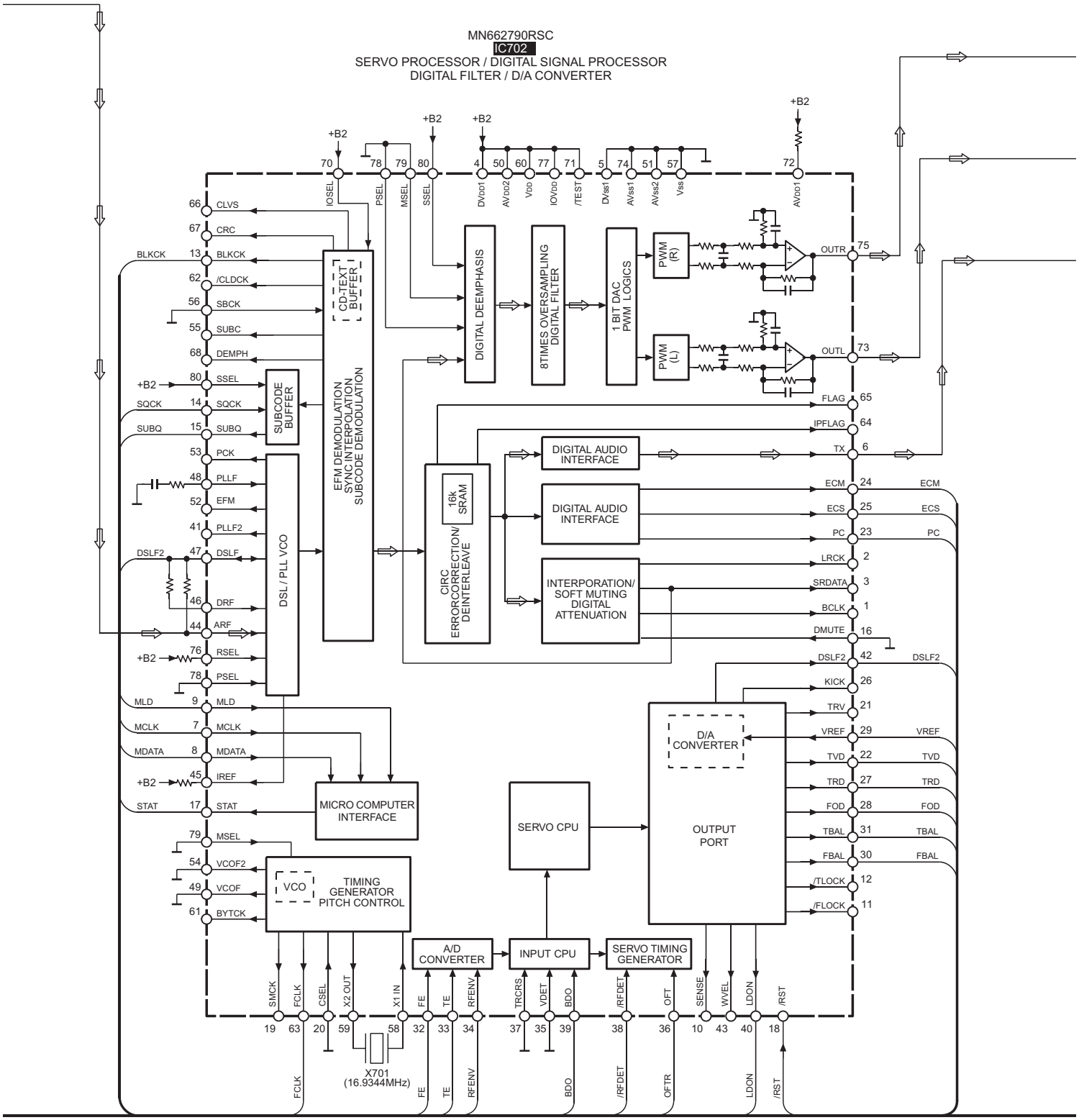
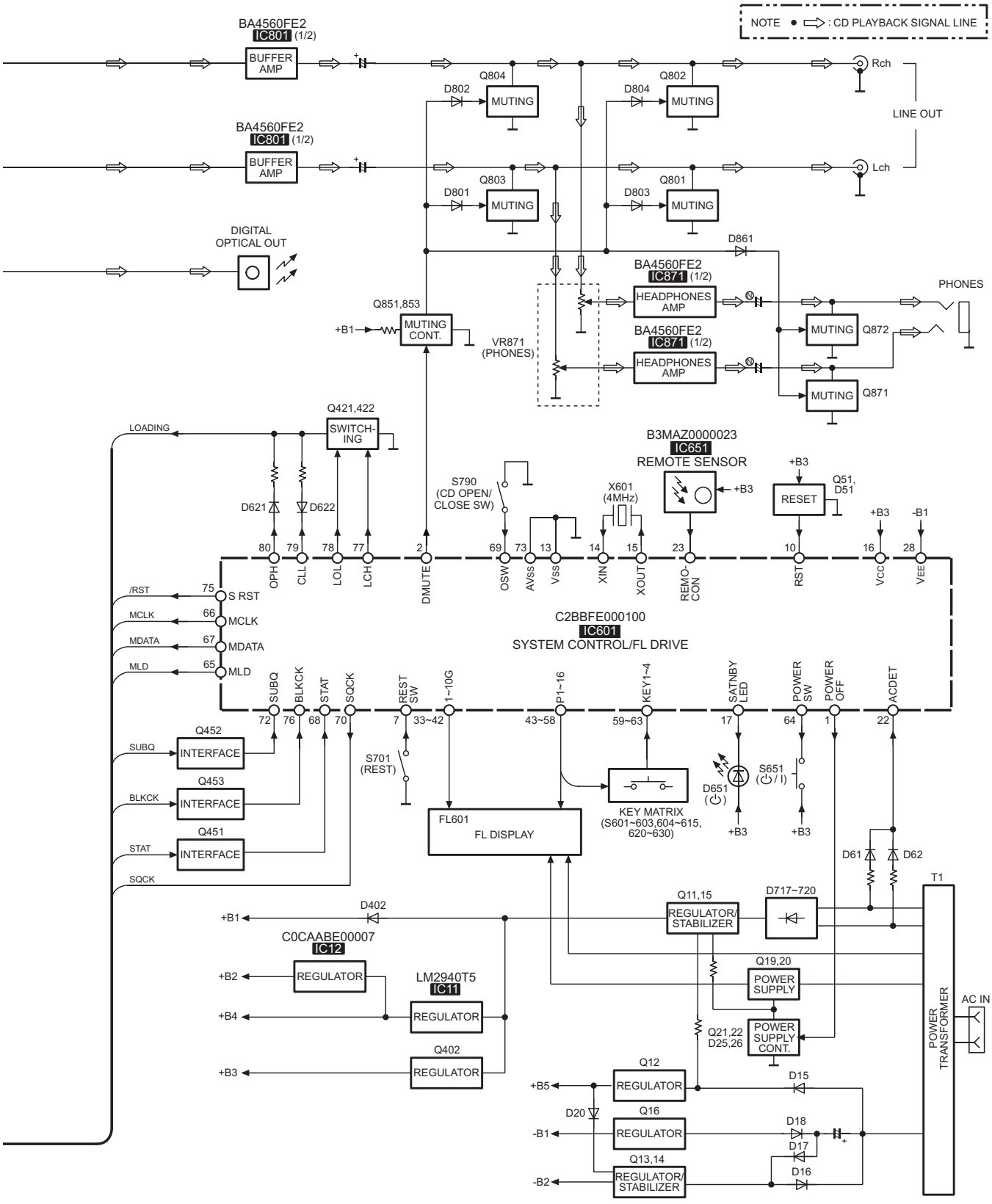
IC701
SERVO AMP
CD OPTICAL PICKUP
SEMICONDUCTOR LASER
Q701
LASER POWER DRIVE
+B2
PHOTO DETECTOR
TJ701
RF
RF IN
DEFLVL
CSBRT
CEA
+B2
OFTR
3TENV
BDO
NRF DET.
ENV
RFENV
OFTR
BDO
/RFDET
FEN
FE OUT
FE
TEN
TE OUT
TE
VREF
LPD
LD
PDA
PDB
PDE
PDF
RFEQ1
RFEQ2
AMP
GCA
BCA
SUBTRA-CTOR
BAND GAP
LDON
PDOWN
EQSQ
GCTL
TBAL
FBAL
Vcc
GND
FCLK
BA5948FPE2
IC703
FOCUS COIL / TRACKING COIL / TRAVERSE MOTOR / SPINDLE MOTOR DRIVE
FOCUS COIL
F+
F-
TRACKING COIL
T+
T-
M701 TRAVERSE MOTOR
TRV+
TRV-
M702 SPINDLE MOTOR
SP+
SP-
D3-
D3+
D4-
D4+
D2+
D2-
D1+
D1-
[CH3]
[CH4]
[CH2]
[CH1]
LEVEL SHIFT
IN3
IN4
IN2
IN1
FOD
TRD
LOADING
TVD
ECS
ECM
PC1
PC2
MUTE [CH1]
MUTE [CH2]
PC
PGND1
PGND2
PVcc1
PVcc2
+B1

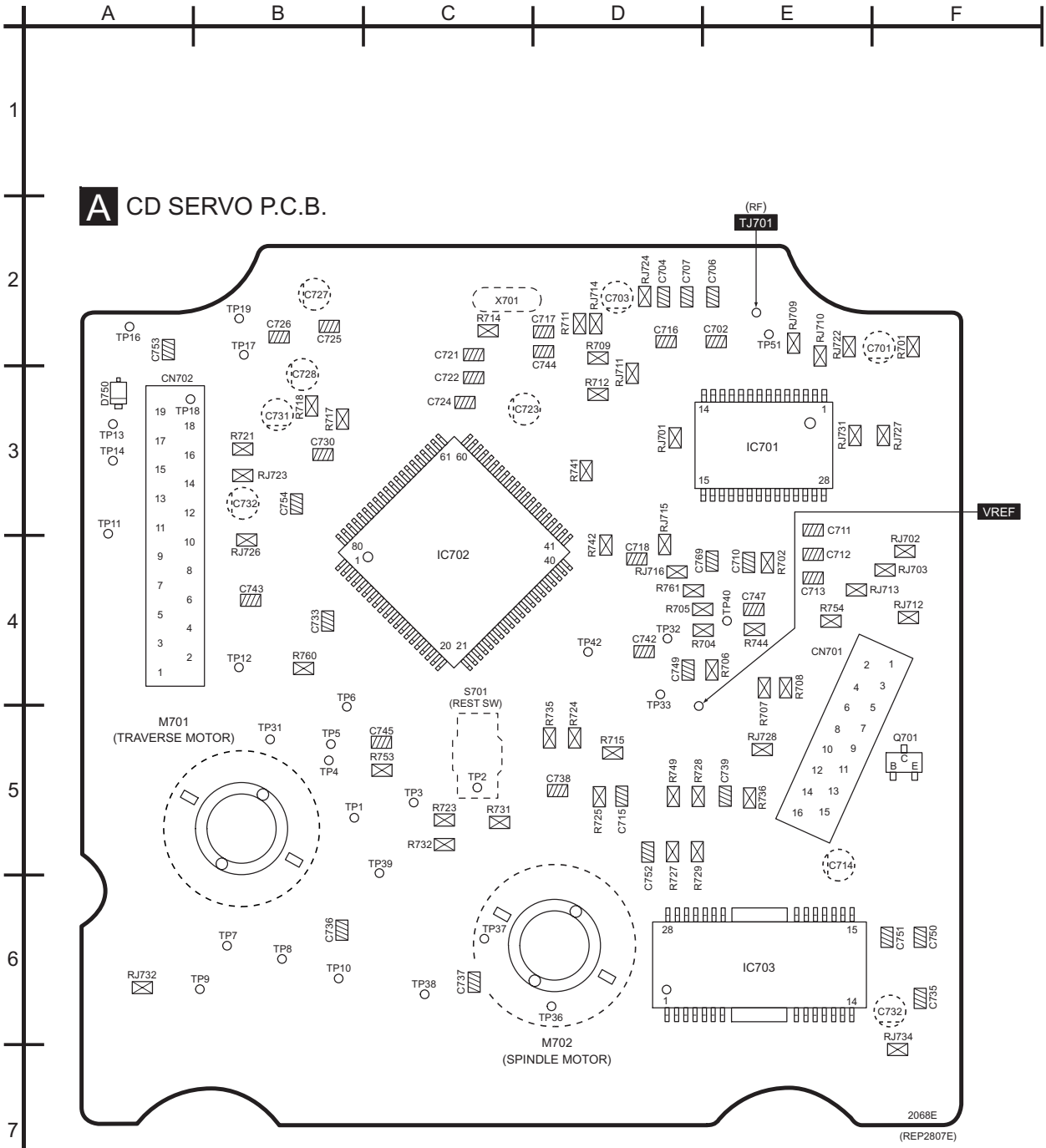
MN662790RSC

IC702

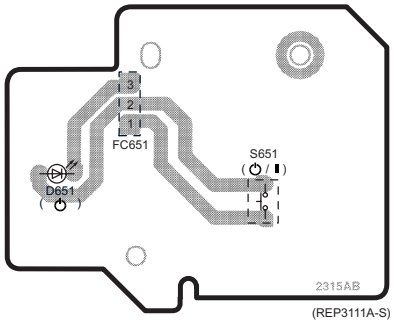
SERVO PROCESSOR / DIGITAL SIGNAL PROCESSOR
DIGITAL FILTER / D/A CONVERTER




NOTE : CD PLAYBACK SIGNAL LINE
BA4560FE2
IC801 (1/2)
BUFFER AMP
Q804
D802
MUTING
Q802
D804
MUTING
Rch
LINE OUT
BA4560FE2
IC801 (1/2)
BUFFER AMP
Q803
D801
MUTING
Q801
D803
MUTING
Lch
DIGITAL OPTICAL OUT
D861
BA4560FE2
IC871 (1/2)
HEADPHONES AMP
PHONES
Q851,853
+B1
MUTING CONT.
VR871 (PHONES)
BA4560FE2
IC871 (1/2)
HEADPHONES AMP
MUTING
Q872
MUTING
Q871
Q421,422
SWITCH-ING
LOADING
B3MAZ0000023
IC651
REMOTE SENSOR
+B3
RESET
Q51, D51
S790 (CD OPEN/ CLOSE SW)
X601 (4MHz)
D621
D622
80 OPH
79 CLL
78 LOL
77 LCH
2 DMUTE
69 OSW
73 AVSS
13 VSS
14 XIN
15 XOUT
23 REMO-CON
10 RST
16 VCC
28 VEE
/RST
MCLK
MDATA
MLD
75 S RST
66 MCLK
67 MDATA
65 MLD
C2BBFE000100
IC601
SYSTEM CONTROL/FL DRIVE
72 SUBQ
76 BLKCK
68 STAT
70 SQCK
7 REST SW
33~42 1~10G
43~58 P1~16
59~63 KEY1~4
17 SATNBY LED
64 POWER SW
1 POWER OFF
22 ACDET
Q452
INTERFACE
SUBQ
Q453
INTERFACE
BLKCK
Q451
INTERFACE
STAT
SQCK
S701 (REST)
FL601
FL DISPLAY
KEY MATRIX
(S601~603,604~615, 620~630)
D651
S651
+B3
+B3
D61
D62
T1
D402
+B1
Q11,15
REGULATOR/ STABILIZER
D717~720
C0CAABE00007
IC12
REGULATOR
+B2
LM2940T5
IC11
REGULATOR
+B4
Q402
REGULATOR
+B3
Q19,20
POWER SUPPLY
Q21,22
D25,26
POWER SUPPLY CONT.
POWER TRANSFORMER
AC IN
Q12
REGULATOR
+B5
D15
D20
Q16
REGULATOR
-B1
D18
D17
Q13,14
REGULATOR/ STABILIZER
-B2
D16

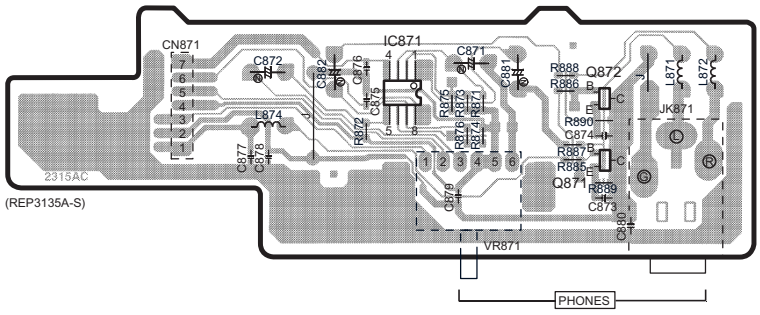

A
B
C
D
E
F
1
2
3
4
5
6
7
8
A CD SERVO P.C.B.
(RF)
TJ701
VREF
X701
IC701
IC702
IC703
CN701
CN702
S701
(REST SW)
Q701
M701
(TRAVERSE MOTOR)
M702
(SPINDLE MOTOR)
2068E
(REP2807E)

C SWITCH P.C.B.



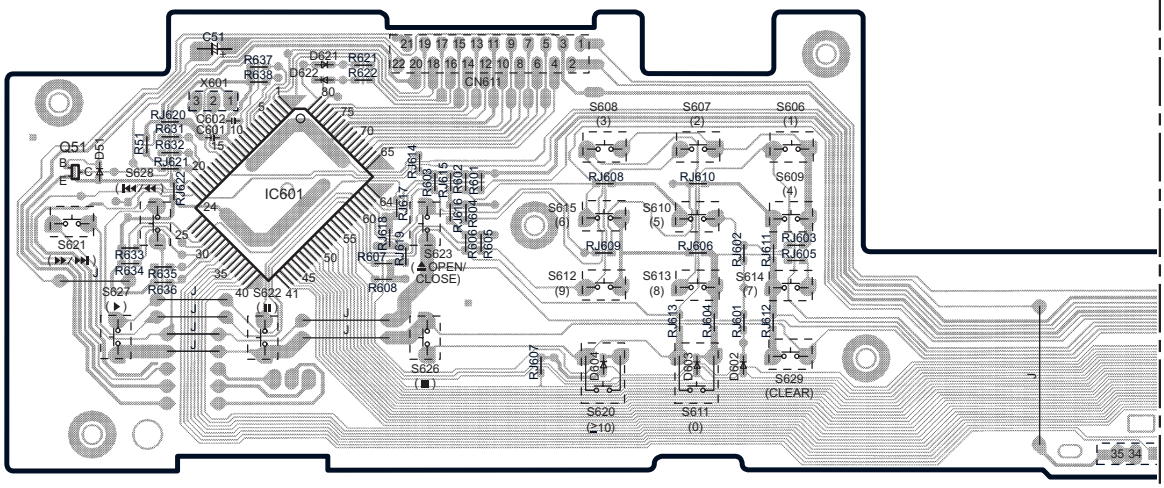
(REP3111A-S)

E HEADPHONE P.C.B.

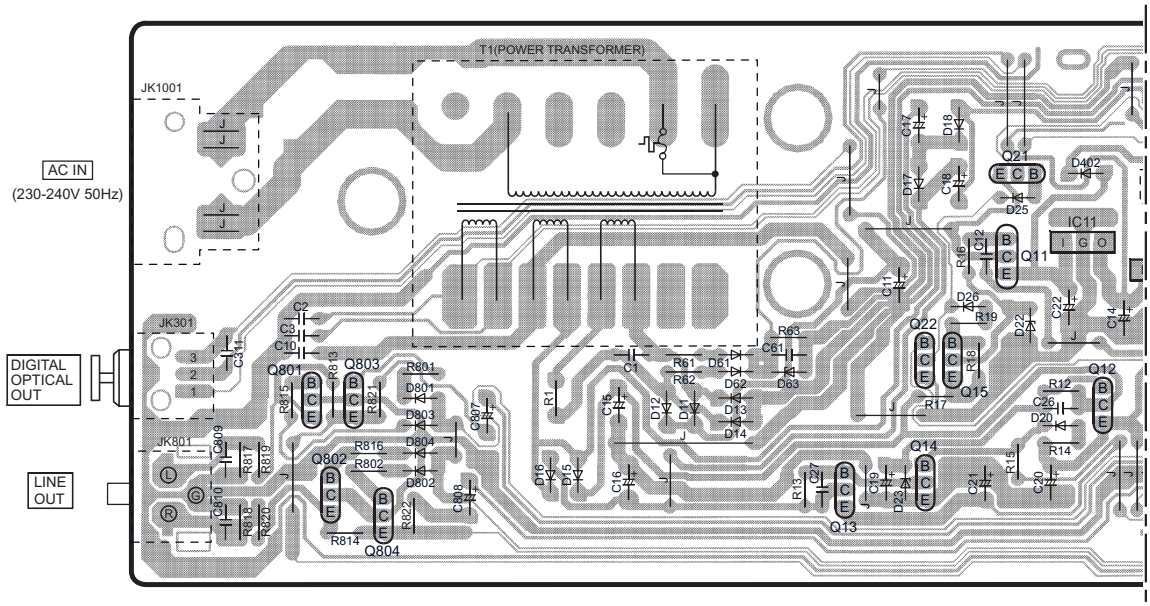


(REP3135A-S)

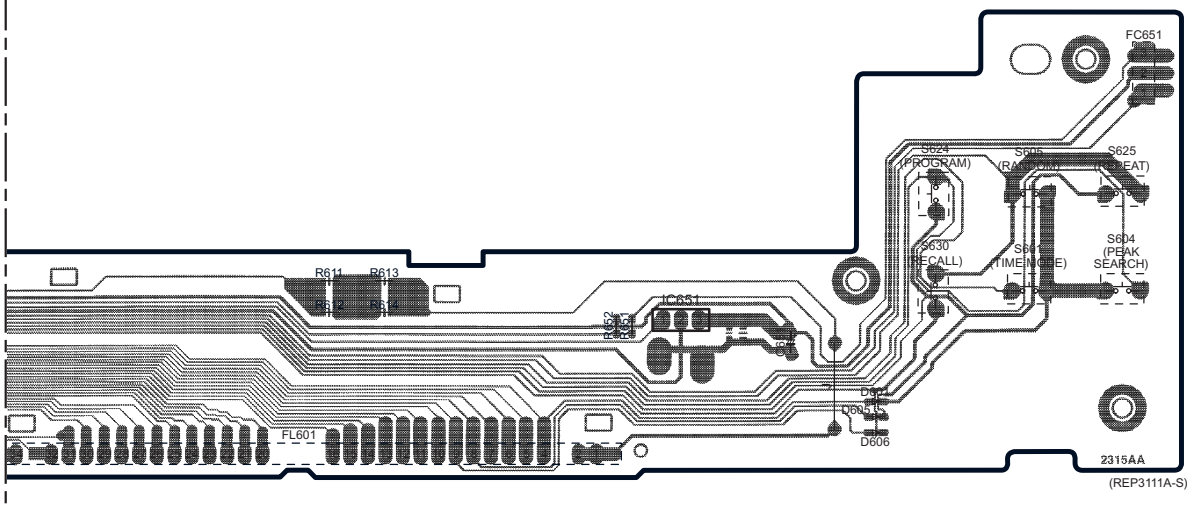
B FL P.C.B.



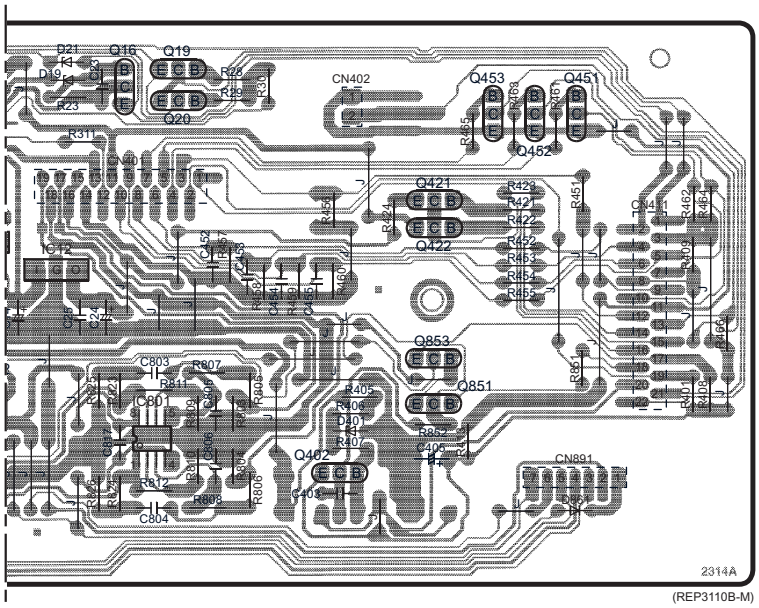
D MAIN P.C.B.



G H I J K L



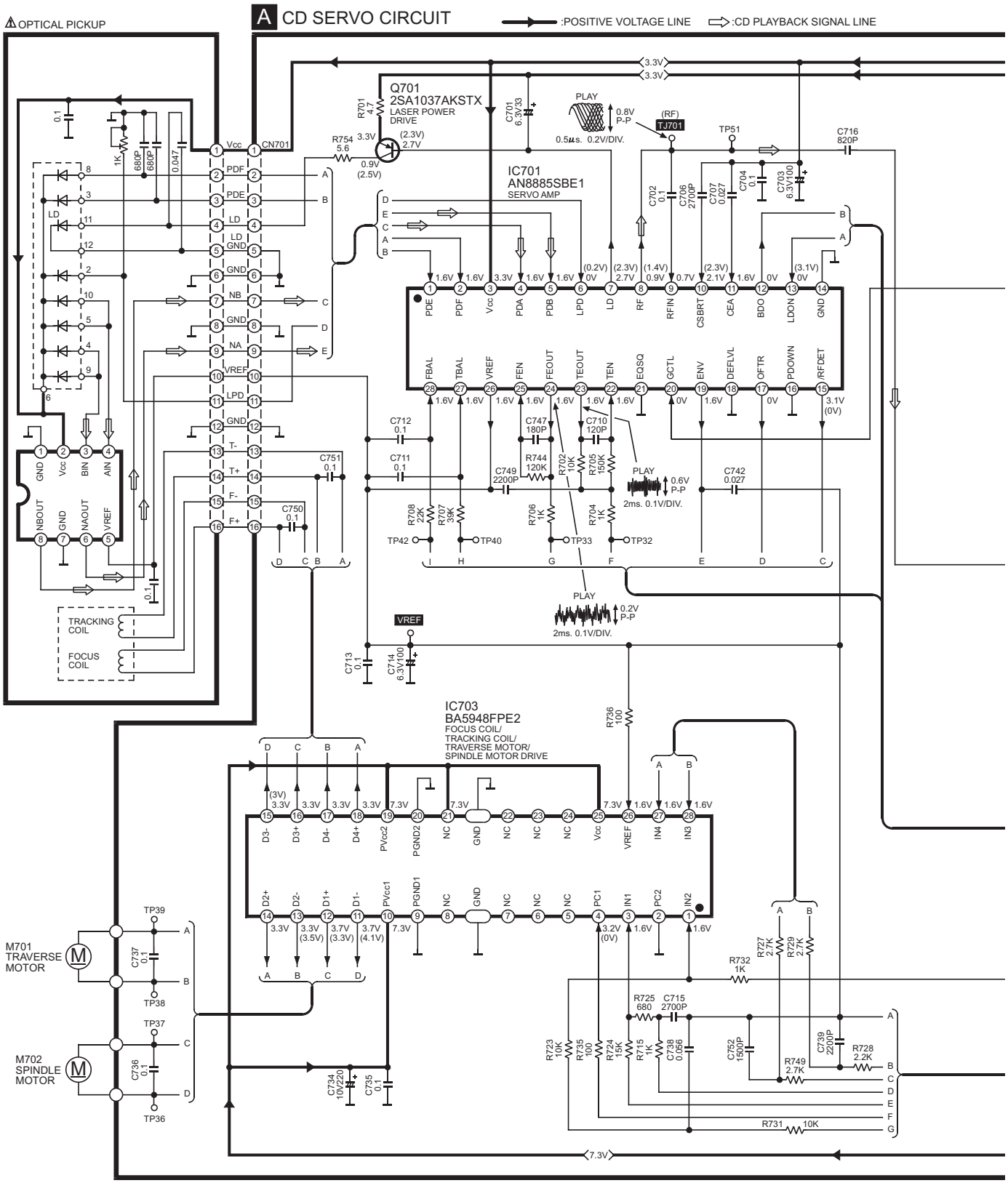
(REP3111A-S)



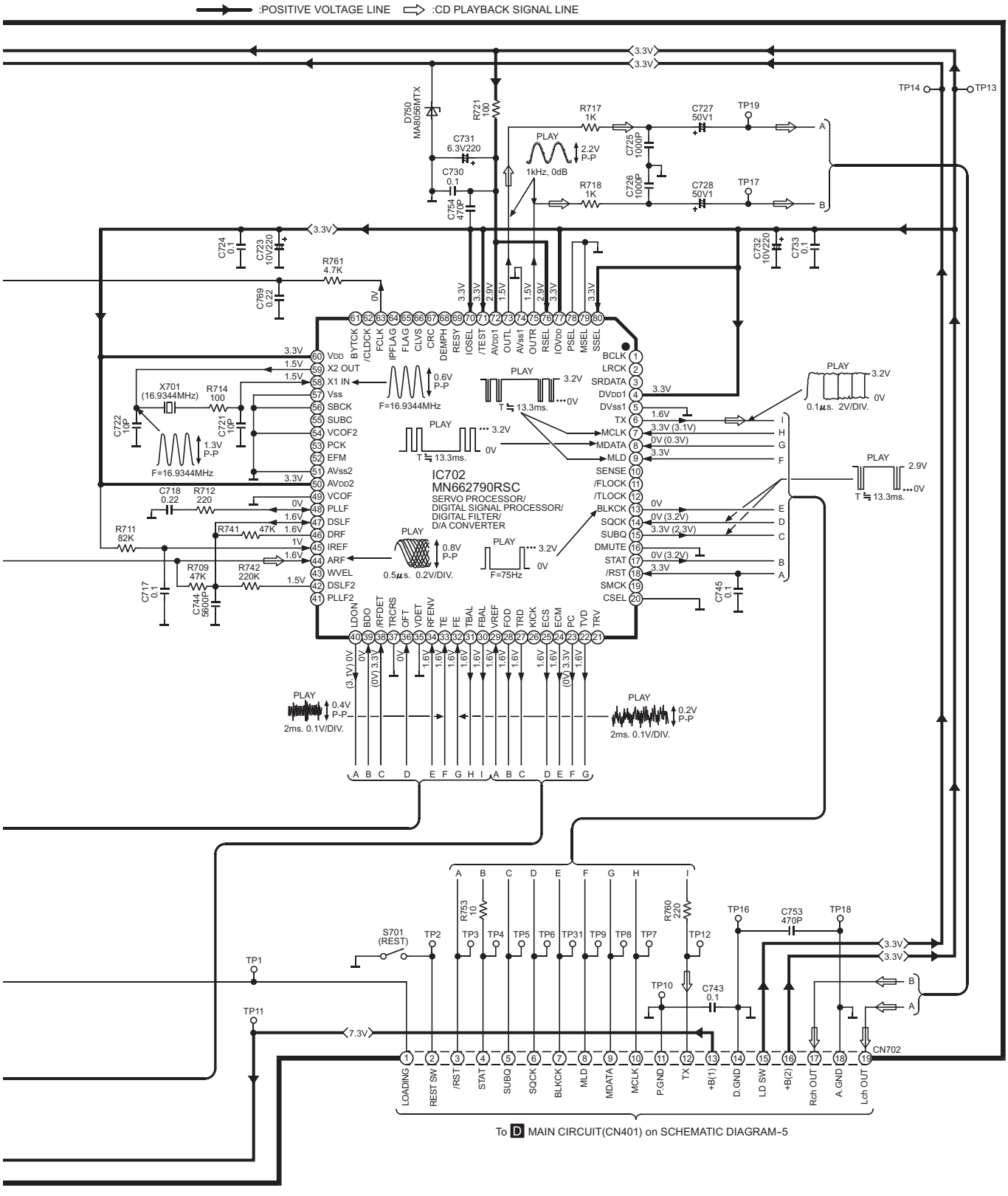
(REP3110B-M)

SCHEMATIC DIAGRAM–1

NOTE:
The number which noted at the connectors on the schematic diagram as
"SCHEMATIC DIAGRAM-1" or "SCHEMATIC DIAGRAM-2"
indicates the schematic diagram serial number located on the left corner in the schematic diagram.



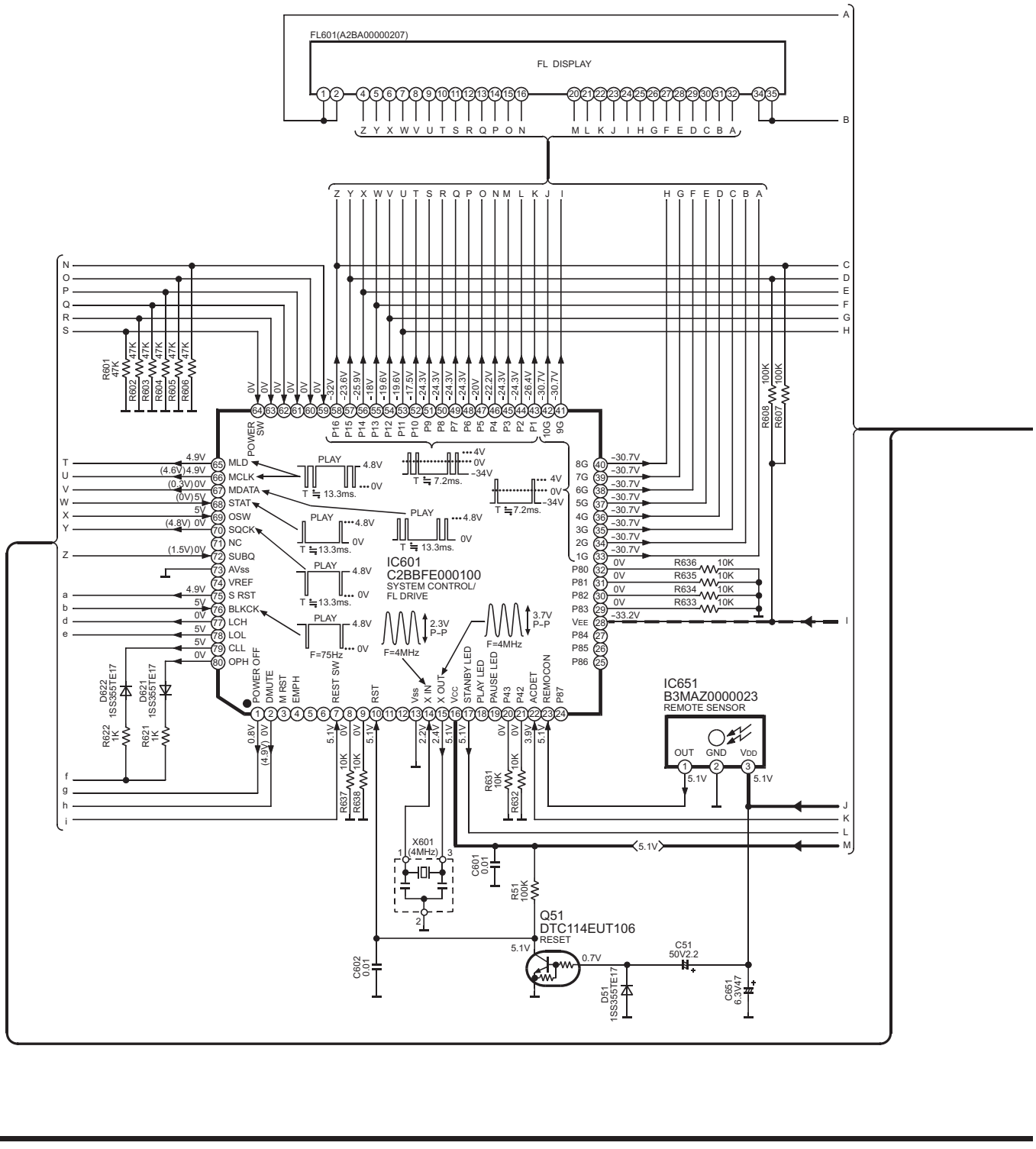
SCHEMATIC DIAGRAM–2



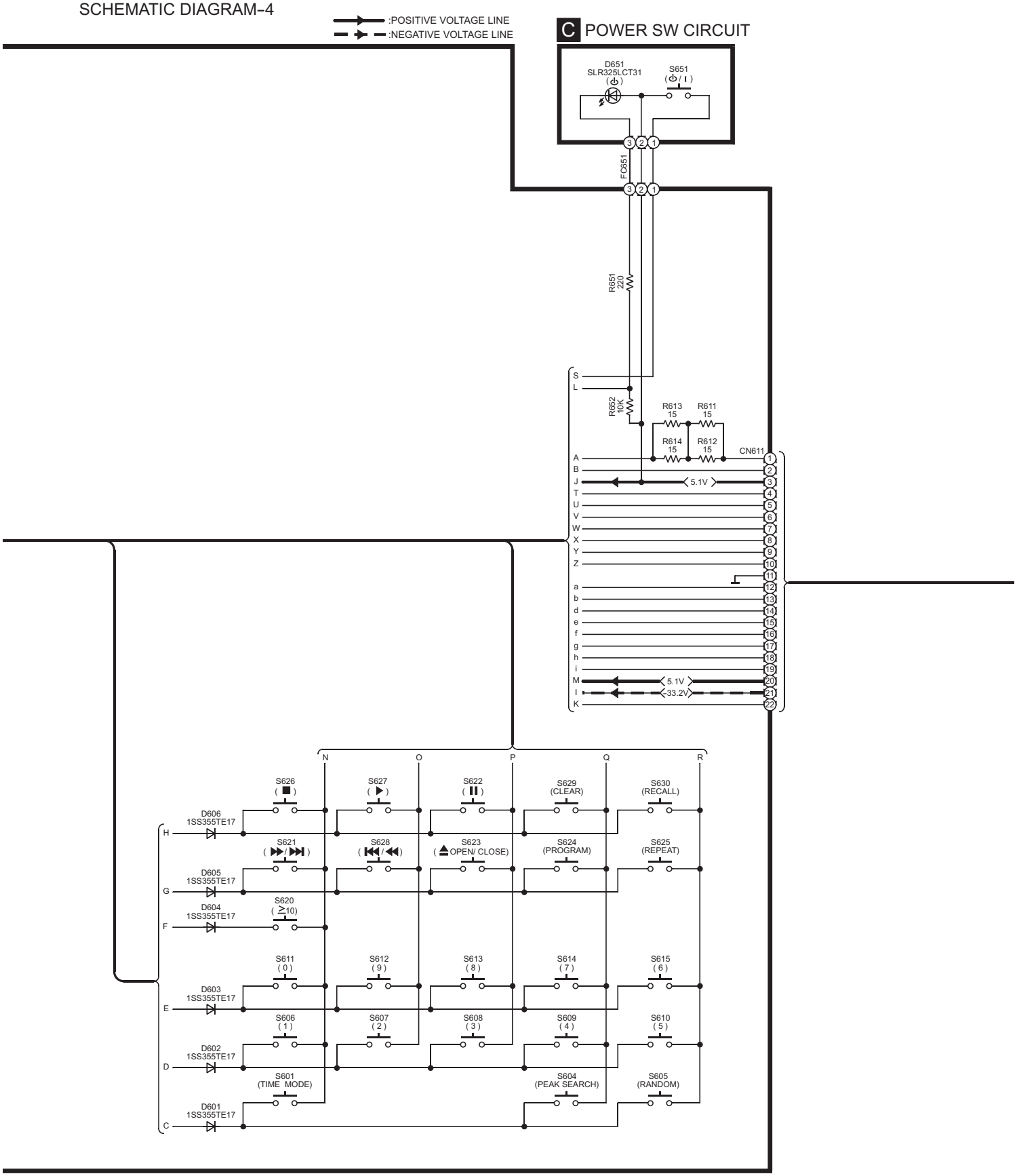
SCHEMATIC DIAGRAM–3

B FL CIRCUIT

:POSITIVE VOLTAGE LINE :NEGATIVE VOLTAGE LINE

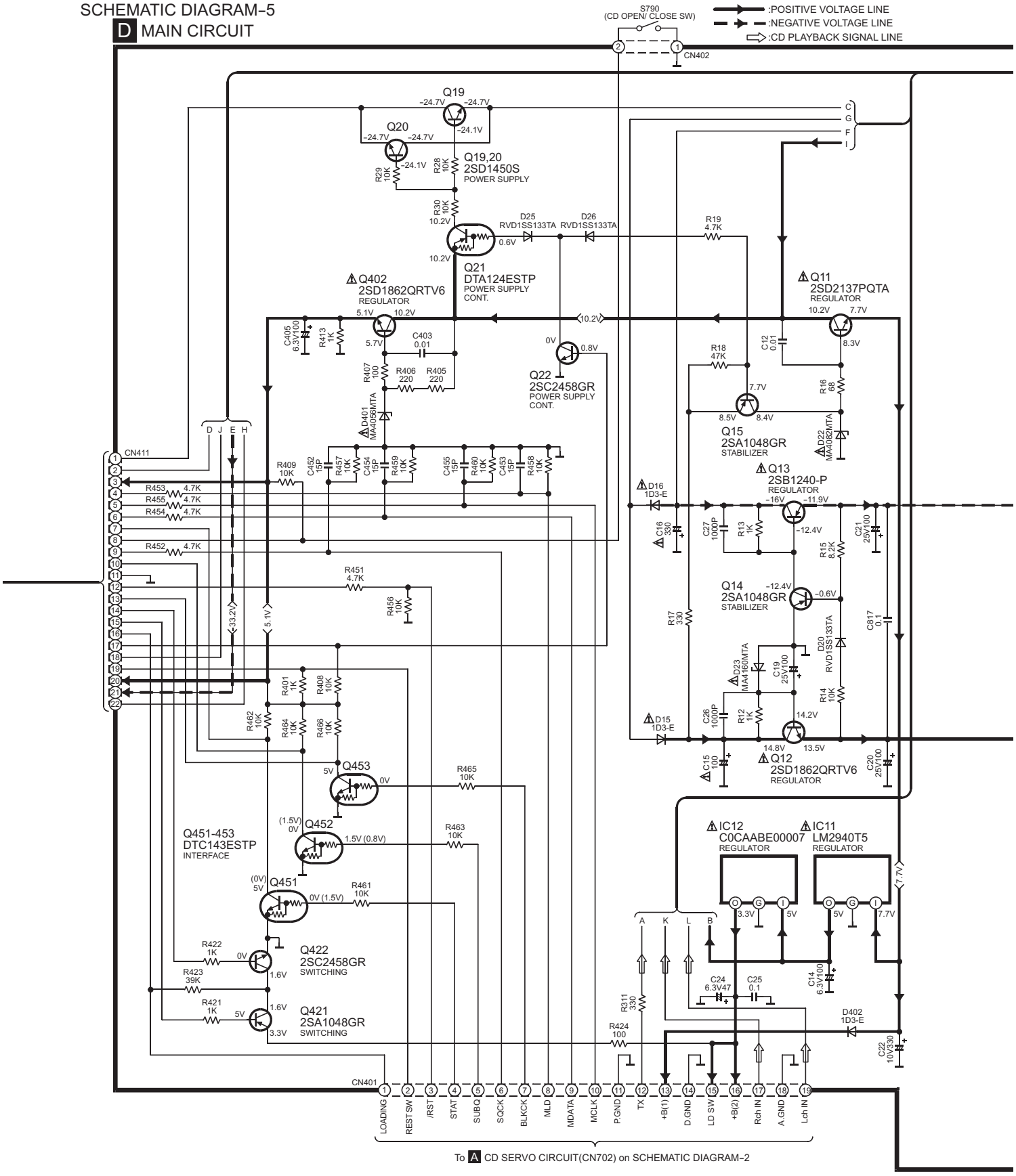


SCHEMATIC DIAGRAM–4



SCHEMATIC DIAGRAM–5

D MAIN CIRCUIT



SCHEMATIC DIAGRAM–6

:POSITIVE VOLTAGE LINE :NEGATIVE VOLTAGE LINE :CD PLAYBACK SIGNAL LINE